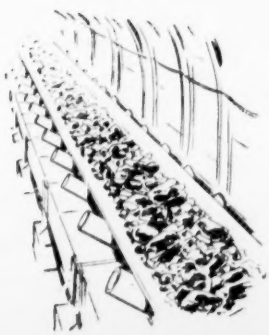
The Mining Journal

Established 1835 — Railway & Commercial Gazette

Vol. CCXLV No. 6271 — LONDON, OCTOBER 28, 1955 — PRICE 8d.

. . . . another reason why **Pluvicor is in greater demand than any other Fire Resistant Conveyor Belting**



Lighthouses are built for strength and ruggedness . . . built to take a lot of wear and tear. So, too, is Pluvicor Conveyor Belting. Because it is moulded in one homogeneous piece with generous covers and edges there is less danger of tearing or fraying if fouled by conveyor or mine structure. Its built-in toughness and resistance to accidental damage ensure long life and low maintenance costs. Pluvicor durability is, of course, just one more of the many reasons why more and more of it is going into the mines . . .

BTR PLUVICOR
FIRE RESISTANT CONVEYOR BELTING

N.C.B. APPROVED

BTR

BRITISH TYRE & RUBBER COMPANY, LIMITED

HERGA HOUSE · VINCENT SQUARE · LONDON · S.W.1

ENGINEERS IN RUBBER

D1036

The Mining Journal

Established 1835

Vol. CCXLV No. 6271 | LONDON, OCTOBER 28, 1955 | PRICE 8d.

CONTENTS

Notes and Comments	491	**The Mining Markets**	503
From Our Portuguese Correspondent	492	**Company News and Views**	504
The Mining Industry in Finland During 1954	493	**Company Meetings and Announcements**	505
The Diamond Industry in 1954	494	Tekka Limited; Kwahu Mining Company (1925) Limited; Amalgamated Tin Mines of Nigeria Limited; Harmony Gold Mining Company Limited; Blyvooruitzicht Gold Mining Company Limited	
Prosperity Poses New Problems for the Steel Industry	496		
Trimming and Dressing Low Grade Ores	497		
New Applications for Photocells in Mining	498	**September Mine Returns**	509
Machinery and Equipment	500		
Metals, Minerals and Alloys	501		

Published by The Mining Journal Ltd., at 15 Wilson Street, Moorgate, London, E.C.2. MONarch 2567 Subscription £2 per annum

NOTES AND COMMENTS

Indonesian Election's Possible Consequences for Tin

It will be some weeks before the full results of the first elections in Indonesia are known; it may be 1956 before a new government takes office. But the general pattern of the election results is now clear and it is unlikely that the counts yet to come from the outlying islands will deviate far from it. In any case less than 10 per cent of the total vote is now outstanding.

It will be recalled that the government of Indonesia in the two years up to the summer of this year (i.e. the government which had put ratification of the International Tin Agreement on the Parliamentary programme for last September) was a coalition headed by the Nationalist Party. It had the support of the comparatively small group of Communists, although they did not hold office, and indeed it foundered on the proposed appointment of a Chief of Staff suspect by the Army of too close Communist affiliations. It was succeeded by another coalition headed by Masjumi and supported by the Socialists; a government which did not pretend to be any other than a caretaker administration. Nobody before the elections ventured to forecast the results. Not only were 168 parties or groups contesting the polls, but because Indonesia had been ruled by coalitions for so long even the main parties were to some extent compromised.

The first results showed the following approximate counts: P.N.I. (or Nationalist Party), 3,500,000; Masjumi, 2,250,000; Communists, 2,000,000; Nahdatul Ulama, 1,500,000; Socialists, 160,000. Thus, when the first counts from the big cities were in, two facts were clear: the Communists were going to be enormously stronger than they were and much stronger than the experts had expected; the Socialists were going to be wiped out. As results came to hand from the country districts and smaller islands the pattern changed somewhat: P.N.I., 6,500,000; Nahdatul Ulama, 5,160,000; Communists, 5,050,000; Masjumi, 4,500,000. Two more facts emerged. Of 168 parties only four of great significance remained, so the danger of a Parliament of splinter parties had been averted. Secondly, Indonesia will still require a coalition.

What is the coalition likely to be? It seems inevitable that P.N.I. will lead the coalition, and it also seems likely that it will have a free choice of allies. It is possible that P.N.I. will link up with the Communists. But after the army's successful intervention last July against the Communists that seems unlikely to be P.N.I.'s first choice. However, it cannot be discounted since P.N.I. stands for a neutralist foreign policy such as the Communists could support and the coalition would not be distasteful to either party. If the Communists are rejected there remains a choice between the two Moslem parties.

Masjumi is the party of the moderate Moslems; it did not take part in P.N.I.'s previous government (on the contrary it helped to bring it down and then supplanted it) but it had co-operated with it in earlier governments. An attempt to secure a P.N.I.-Masjumi coalition failed in August. Nevertheless, it is quite possible that the parties would think differently now and if they formed a government would be the combination most likely to ratify the I.T.A. Nahdatul Ulama is a more specifically religious party and seeks a sort of theocratic state, which would conform completely with uniform precept. As such it might be thought to be more to the "right" than Masjumi. But in fact it assumes a very philosophical view of the Communists and finds no difficulty in co-operating with them; it was in P.N.I.'s last government. It will also be seen from the figures given above that its main support lies in the countryside and it represents a sort of village protest against the conservative Masjumi. Its leaders are all local men and it lacks the national organization to take a full share in a coalition even if it can contribute adequate voting strength. In its new found strength it is something of an enigma. There is no doubt that the best coalition for the tin industry and the I.T.A. would be P.N.I.-Masjumi.

But the elections are bound to have an effect outside Indonesia and particularly in Malaya. The success of the Indonesian Communists may well encourage the Malayan Communists to believe that if they can secure from Tengku Abdul Rahman a truce and registration as a political party they may too secure a high vote in secret elections. The total elimination of the Socialists by the Communists in Indonesia is a warning of what could easily happen in Malaya. Furthermore, if the Communists were allowed to come out into the open in Malaya they would certainly try to increase their hold over the tin miners. Yet there is a curious belief among all Oriental nationalists that Communists are not dangerous if they are of one's own blood and Tengku Abdul Rahman will not want to delay full in-

dependence for Malaya, which will only be possible if the Communists are pacified or utterly crushed. Probably the effect of Indonesia's elections will be the same on both sides in Malaya; it will increase their desire to come to terms. In this respect the importance of Indonesia's elections may well be the effect it produces in Malayan affairs rather than the consequence they have in Indonesia itself. The new Indonesian coalition may be as ineffective as the old ones and whatever coalition is formed will have a difficult task in simply maintaining order. In Malaya, however, events are moving a good deal more rapidly.

Thoughts on Chilean Copper

Bache and Company in their recent circular letter have discussed the latest situation in Chile where the effects of a break in copper prices will be watched with unusual interest. Much of the latter is devoted to an account of plans for expansion which have already been discussed in these columns. However, it also contains a list of the conditions on which, according to Bache, Anaconda is willing to invest $21,000,000. These are : 1, Amortization of the total investment over 5 years; 2, Waiving of import duties and taxes on imported equipment; 3, Annual revaluation of capital; 4, Permission to sell $11,000,000 at the free rate; 5, $17,300,000 to be spent on the mine to be allowable as expenses for tax purposes; 6, A guarantee of no further increase in taxation for 20 years; 7, The new production to be exempt for 10 years from control. If these conditions are in fact correctly stated they are considerable. They may not be excessive but it is certainly difficult to see the Chilean Government granting them. There will probably be prolonged negotiation before this expansion offer is translated into reality.

The other interesting part of the letter refers to the sale of copper, since the companies took over responsibility for it. It appears that the companies have not sold any metal to the merchants and this fact should be remembered when evaluating Bache's complaint. The complaint is summarized " Chilean copper is being sold in the United States cheaper than it could and should be." There is no doubt that copper has been fetching a good deal more in Europe than in the United States but in many ways what has been surprising is not how little but how much Chilean copper has been sold in Europe. In view of the fact that sales were handed over to the producers, the Copper Department has managed to keep a pretty fair control over them. Left to themselves the producers would no doubt have preferred to keep the American market well supplied. Bache also says that a number of highly profitable offers from merchants were turned down by the producers and the Department. One was said to be for electro for delivery at a fixed price of 47¼ c. c.i.f., New York, over the 12 months of 1956. One cannot help wondering whether the merchant is not now relieved that it was turned down.

The letter is not sufficiently up to date to deal with the Chilean attitude now that prices are on the downturn. This attitude obviously requires watching. It must be remembered that the Chileans now get their cut of the copper industry entirely from profits tax. It does not seem that they are nearly as well placed to try to stop a decline in prices, by withholding supplies from the market, as they were when they sold the copper themselves. Obviously, if the producers do not sell the copper there will be no profits to tax and, therefore, little is to be gained by requesting them not to sell. At the same time the practice of sticking up the market is so hallowed in Chile that it is hard to imagine that Chile will stand idly by while prices slide.

Broken Hill Corporation Imports Caledonian Iron Ore

The new Caledonian company Société Caledonienne des Minerals de Fer has concluded a contract for the sale of 160,000 tons of iron ore per year to the Broken Hill Proprietary Company of Australia, to start in May, 1956. The contract includes an option on 300,000 tons for Broken Hill. Expansion by the Caledonian company to meet this order forms part of large modernization plans, the biggest of which is the stepping up of nickel output capacity from the present 10,000 tons to between 15,000 and 20,000 tons in 1959 and the lowering at the same time of production costs by the use of electrical ovens. The contract reveals once again the important standing of The Broken Hill Proprietary Co. in the Australian industrial picture.

It has been well stated that no other industrial organization has invested so heavily in the future of Australia as the Broken Hill Proprietary Co. group. Since the end of World War II, £A60,000,000 has been spent in an expansion programme and within the next five years another £A67,000,000 will be spent on new plant. Yet even this great effort is not sufficient to meet the great industrial expansion of the country, and the demand for steel and steel products. Consequently the company is subjected to carping political criticism, and equally ill-informed comment from members of the public, because steel has to be imported and imports must continue for some years yet. There is an urge in certain quarters for the establishment of government steel enterprises, quite regardless of the cost of the product that is inevitably greater under such control.

The Broken Hill Proprietary Co. is now producing more than 2,000,000 tons of steel per year, and the price, despite worsening economic conditions, is still the cheapest in the world New plant recently put into commission includes a blast furnace with a capacity of 1,500 tons of pig iron per day, the largest in the British Commonwealth and one of the largest in the world. A continuous hot strip mill has been erected at Port Kembla, New South Wales, which has a rolling capacity of 1,000,000 tons of steel per year. The tinplate works now under construction will provide about one-half of the country's tinplate requirements. Also under construction is a second open hearth shop at Port Kembla, which will increase steel ingot output by 350,000 tons per year. A cold rolling mill is under way to provide steel sheet for the tinplate mill. The electrolytic tinning plant will increase capacity sufficiently to meet all Australia's requirements.

Portugal

(From Our Own Correspondent)

Foz Do Douro, September 29.

There is little activity in the Portuguese minerals industry owing to the holiday season. The United Kingdom continues as the principal importer of tungsten-bearing ores. Tantalite/columbite is virtually a dead letter, as is cassiterite.

Cupreous pyrites are being exported in increasing quantities (256,296 tonnes for the period January-July of this year) while both haematite and magnetite are holding their own. Locally won maganese does not seem to find a ready market, the tonnages exported being very small. Beryl is being shipped in increasing tonnages.

Export figures for July are (in tonnes) : Tungsten bearing ores including residues, 358, cassiterite 12, cupreous pyrites 30,411, haematite 11,474, magnetite nil, manganese 429, white arsenic 182, and tin metal 5.

The Mining Industry in Finland During 1954

The threatening exhaustion of known ore reserves in Finland has emphasized the need for wider mineral prospecting in conjunction with increased governmental funds being made available to allow this prospecting to be undertaken by public and private agencies throughout the country. The following article, condensed from *Mineral Trade Notes*, Vol. 40, No. 4, published by the U.S. Bureau of Mines, presents a resumé of minerals production in Finland during 1954, and enlarges on the information contained in the article which appeared in our issue of June 3, 1955.

Unless new ore reserves are found, production of non-ferrous metals in Finland will be seriously endangered. Ore reserves of Aijala copper mine will be exhausted in two or three years, the Ylöjärvi copper mine and the Metsämonttu zinc mine in six to eight years, the Vihanti mine in about 20 years, and the Outokumpu mine in 25 years.

Test drillings in the lead-bearing area at Korsnäs, south of Vaasa continued in 1954 and galena was found in numerous drillings but not in the same quantity as in the loose boulders found in 1952 and 1953. Search for the main ore body is still being made by the Government Institute of Geological Research. The search for base rock of molybdenum occurrences that had been reported at Ylitornio and Rautio in 1953 was continued in 1954.

In the summer of 1954, traces of copper were found at Oulainen and Merijarvi by the Institute. The search for the base rock of loose gold finds in Lapland, which have been underway since 1949, were continued in 1954.

In so far as cobalt production is concerned, cupriferous pyrite from the Outokumpu mine contains about 0.2 per cent cobalt, but no cobalt is extracted in Finland. The cobalt is contained in pyrite sinter that is shipped to Duisburger Kupferhütte G.m.b.H., in Western Germany and to Vuoksenniska Oy. for the extraction of iron.

Based on the present rate of exploitation at the Outokumpu mine, the theoretical available quantity of cobalt is estimated to be about 1,200 tons a year if the full cobalt content of the ore can be extracted.

COPPER PRODUCTION

Output of copper ore in Finland decreased in 1954 but that of copper concentrates increased. A total of 1,055,121 tonnes of copper ore was produced last year (1953, 1,095,885 tonnes), while 104,716 tonnes of copper concentrates compared favourably with the 84,394 tonnes produced in 1953.

Outokumpu Oy. abandoned its nickel-copper mine at Nivala because of virtual depletion of ore reserves. Mining was discontinued at the Orijärvi mine, the oldest in Finland, but sorting of old slag piles for residual minerals will continue on a limited scale, and the vicinity will be searched for new ore reserves. The annual loss of copper and copper concentrates owing to the abandonment of these mines will be only 3,000 to 4,000 tons.

In connection with the completion of a new shaft, hoisting tower, and concentration plant at the Outokumpu mine, Prof. Aarne Laitakari, of the Government Institute of Geological Research in Finland, has stated that the remaining ore reserves at the mine were 15,000,000 to 16,000,000 tons, which at the present rate of mining would be adequate for another 25 years. To date about 10,000,000 to 11,000,000 tons of ore have been mined.

The Harjavalta smelter produced 27,729 tons of copper anodes and 358 tons of copper crystals. The Pori Metal Works produced 21,365 tons copper cathodes and 119 tons of copper sulphate.

The quantity of copper available for domestic consumption in 1954 was 16,166 tons, 41 per cent more than the 11,479 tons available in 1953.

Finnish gold output during 1954 was 528 f.kgrm. About 1 grm. of gold per ton of ore is recovered from the Outokumpu mine, while small quantities of gold are contained in the ore of the Orijärvi and the Ylöjärvi mines. The gold is extracted at the Pori metal works of Outokumpu Oy. from copper anodes delivered by the Harjavalta smelter.

Gold ore was mined at the Haveri mine of Vuoksenniska Oy., and about 10 to 15 kgrm. of gold was obtained by individual miners in Finnish Lapland through placer mining at Lemmenjoki. Silver output in 1954 was 7,448 kgrm. Imports of gold bullion from the Soviet Union totalled 4,443 kgrm. valued at 1,155,000,000 Finnmarks. Exports were 7,696 kgrm. of gold and 2,583 kgrm. of silver.

OTHER METALS

The 45,220 tons of zinc-lead copper ore produced at the Orijärvi mine in 1954 contained 0.75 per cent lead, 0.61 per cent copper, and 2.20 per cent zinc. Total output of lead concentrates in 1954 was 478 tons, 402 tons of which was from the Orijärvi mine (54.8 per cent lead) and 76 tons from Vihanti mine (58.1 per cent lead).

Output of zinc ore from the Metsämonttu and Vihanti mines during the year totalled 96,108 tons, Metsämonttu mine accounting for 83,284 tons and the new mine at Vihanti, 12,824 tons. Concentration of the ore from these mines and that of Orijärvi and Outokumpu mines resulted in an output of 9,159 tons of zinc concentrates. During the year 8,382 tons of zinc concentrates were shipped to Belgium, under a processing agreement, and metallic zinc and zinc semi-manufactures was returned to Finland. In 1954 Belgium supplied Finland with 4,107 tons, or 70 per cent of the total zinc imports of 5,894 tons.

Outokumpu Oy. began the operation of a new mine at Vihanti in Central Ostrobothinia in November, 1954. This mine will be the second largest non-ferrous mine in Finland when operations reach full scale. Estimated ore reserves of Vihanti are about 7,000,000 tons to a depth of 250 m. The scheduled annual production is expected to be about 300,000 tons of zinc ore and 100,000 tons of pyrite ore, which will yield about 64,000 tons of zinc concentrates, 7,500 tons of copper concentrates, 1,800 tons of lead concentrates and 50,000 tons of sulphur pyrites.

The 33,440 tonnes of nickel ore produced at the Nivala mine in 1954 contained 0.67 per cent nickel and 0.41 per cent copper. Ore from the Outokumpu mine contains about 0.1 per cent nickel.

The Nivala ore was processed to a low-grade concentrate containing about 6 per cent nickel, which was converted to nickel matte at Harjavalta. This process was discontinued in 1954, and the concentrate together with nickel-bearing ore from the Outokumpu mine was used to produce nickel sulphate at the Pori works. Nickel sulphate production during the year was 377 tons, all of which was exported.

In Finland selenium is obtained as a by-product from the treatment of copper anodes at the Pori metal works. During 1954 the production of selenium was 2,525 kgrm. Exports of tin, unworked waste, scrap, bars, wire, and sheets totalled 112 tons valued at 23,760,856 Finnmarks. Some 110 tonnes of tungsten concentrates containing 68.92 per cent WO_3 was produced at the Ylöjärvi mine during 1954.

DIAMONDS—I

The Diamond Industry in 1954

The following article is an abridgment of the 30th Annual Report of the diamond industry, covering the year 1954, and produced by the publishers of *The Jewelers' Circular Keystone*. The report has been prepared by G. Switzer, associate curator in the Division of Mineralogy and Petrology of the Smithsonian Institution, Washington. In the first portion of the article appearing herewith, a general report is given of the world diamond trade during 1954, together with comprehensive details concerning the activities of the De Beers Group. In a subsequent issue the final instalment of the article will describe the developments which took place last year in parts of Africa outside the Union and in other diamond producing countries of the world.

Sales of gem and industrial diamonds during 1954 totalled approximately £65,000,000, as compared to £63,000,000 in 1953. The proceeds realized in 1954 from sales of diamonds effected through the Central Selling Organization on behalf of South African and other producers, and diamonds drawn from stocks held by the Diamond Corporation were gem diamonds £45,610,010, industrial diamonds £16,543,115, total £62,153,125. Corresponding figures in 1953 were gem £43,336,109, industrials £17,819,832, total £61,155,941.

The rise in diamond sales in 1954 over 1953 amounted to £997,184, a gain of approximately 1¼ per cent. The gain was made entirely in the sales of gem diamonds, with an increase of £2,273,901, which served to more than offset a decrease in sale of industrials amounting to £1,276,717.

World production of diamonds during 1954 was once again the highest on record. Total production amounted to approximately 20,440,000 ct., a gain of about 360,000 ct. over 1953. Of this 1954 total, approximately 16,840,000 ct. were of industrial grade and 3,600,000 ct. of gem quality.

REVIEW OF YEAR

The diamond industry experienced a generally prosperous year in 1954. Total sales by De Beers sales organizations were greater than in the previous year. Sir Ernest Oppenheimer, in his annual statement as chairman of De Beers Consolidated Mines, Limited, said that the demand for gem diamonds is substantially greater than production from all sources. This demand is being met in part by increased production from South West Africa and Tanganyika. Sir Ernest went on to say that due to large stockpiling purchases of industrial diamonds by the United States government, the outlook for industrial section of the diamond industry is also very promising. However, he pointed out that stockpiling purchases by the United States would not continue indefinitely, and at that time the industry would be faced with overproduction of industrials.

In December, 1954, the Diamond Corporation announced an increase of 2½ per cent in the price of rough diamonds.

Accurate figures regarding diamond production are not available for all countries. However, in the table below, exact figures received from official sources are given in most instances. Total world production during 1954 was the highest on record. It amounted to approximately 20,440,000 ct., or about 360,000 ct. greater than in 1953. Most of the increased production came from the Union of South Africa and Tanganyika.

World production of industrial diamonds during 1954 amounted to about 16,840,000 ct., an increase of approximately 280,000 ct. over 1953. The Belgian Congo continues to be the largest producer with about 12,000,000 ct., most of which comes from the Bakwanga mine in the Lubilash sector. Belgian Congo production, which is mainly crushing boart, was greater in 1954 than in 1953 by only about 40,000 ct., indicating that production from this major source of industrial diamonds is levelling off at about 12,000,000 ct. per year.

SOUTH AFRICAN PRODUCTION

In 1954 production in the Union of South Africa and South West Africa was 3,542,000 ct., an increase over 1953 of 224,000 ct., or about 6.7 per cent. Details of South African production during 1954 show that the De Beers Group of Mines produced 1,113,024 ct., including 75,225 ct. from alluvial diggings at Kleinzee. The Premier (Transvaal) Diamond Mining Co. produced 1,431,281 ct., while alluvial production amounted to 214,000 ct., a figure which includes the production recorded from pipe mines outside De Beers' control. Production from State Mines of

WORLD PRODUCTION OF DIAMONDS, 1951 - 1954, BY COUNTRIES, IN METRIC CARATS
(Including Industrial Diamonds)

	1951	1952	1953	1954		
				Total	Industrial	% Industrial
Africa :						
Angola	743,324	743,302	729,377	721,607	296,000	41
Belgian Congo	10,564,667	11,608,763	12,580,256	12,619,378	12,066,000	98/45*a*
French Equatorial Africa	136,000	163,400	140,144	152,529	100,000	66
French West Africa	101,000	136,080	180,000	216,000‡	140,000	66
Gold Coast	1,752,878	2,189,557	2,180,728§	2,135,141	1,670,000	83/74*b*
Sierra Leone	475,759	451,426	472,934	398,608	263,000	66
South West Africa	478,075	541,027	617,411	683,536	137,000	20
Tanganyika	108,625	143,023	172,304§	326,009	160,000	49
Union of South Africa :						
Lode	1,967,272	2,093,138	2,397,755	2,544,305*	1,659,000	77/50*c*
Alluvial	289,063†	282,681†	300,000†	314,000†‡	157,000	50
Brazil	200,000	200,000	200,000	200,000‡	100,000	50
British Guiana	43,260	38,305	35,306	30,073	18,000	60
Venezuela	63,226	98,291	84,790	96,983	68,000	70
Other Countries	3,000	5,000	5,000	5,000‡	3,000	60
Grand Total (Round Figures)	16,917,000	18,694,000	20,090,000§	20,440,000	16,840,000	

* Pipe mines under De Beers control, but including 75,225 carats from De Beers' alluvial diggings at Kleinzee. † Includes an estimated 100,000 carats from the State Mines of Namaqualand. ‡ Estimated. §Revised figure. *a* Bakwanga/Kasai. *b* European companies/African producers. *c* Premier/De Beers.

World diamond production in carat percentage during 1954

Namaqualand was estimated at 100,000 ct., while Consolidated Diamond Mines of South West Africa produced 683,536 ct.

DE BEERS GROUP

De Beers Consolidated Mines Ltd. is the major factor in the diamond industry because it holds a controlling interest in a number of diamond mining companies and also in companies having buying contracts with independent producers. De Beers' profit for 1954 was £11,010,344, which is £307,457 less than for the previous year. The Diamond Corporation Ltd. acts as a link between South African and other producers.

Four pipe mines were operated during 1954 by De Beers Consolidated Mines Ltd., or by subsidiary companies. These were the Wesselton and Bultfontein mines in the Northern Cape, near Kimberley, the Jagersfontein mine in the Orange Free State, also near Kimberley, and the Premier mine, near Pretoria in the Transvaal.

Production figures from the principal mines in the Union of South Africa during 1954 (exclusive of the Premier mine) were:

Mine	*Ct. Rec'd*	*Mine*	*Ct. Rec'd*
Wesselton	370,924	Kimberley Floors ..	11,023
Bultfontein	392,175	Stadium Heap ..	52,054
Dutoitspan Sampling..	30	Old Pulsator Tailings	66,018
Jagersfontein	121,526	Misc. Sampling ..	905
Kleinzee	75,225	Koffiefontein Sampling	7
De Beers Cyl. Lumps	8,705	Sundry Finds ..	2
Wesselton/Dutoitspan Cyl. Lumps	9,271	Total	1,113,024
Bultfontein Cyl. Lumps	5,159		

At the Wesselton mine systematic sampling on the 2,160 ft. level was continued, and will be completed in 1955. The average cost per load washed at the Bultfontein mine was 6s. 6.5d., or 3.8d. less than the average for 1953. The Dutoitspan mine remained on a maintenance basis throughout the year, and work was confined to development and drainage. Erection of the secondary crushing plant was completed early in 1955. At the Jagersfontein mine the 1,874,432 loads washed in 1954 comprised 1,743,251 loads from underground and 131,181 loads from surface sources.

The Kleinzee alluvial diggings in Namaqualand are located 45 miles south of the Buffels River. Production in 1954 exceeded that of the previous year by 4,666 ct. due to an increase in grade of 1.1 ct. per 100 loads.

The Premier mine is the largest of the pipe mines, having a surface area of about 75 acres. Production from this mine is in large part high grade industrial stones. During the year 4,804,837 loads were treated, with an average yield of 29.79 per 100 loads. A total of 1,431,281 ct. were recovered.

At the Premier mine during 1954 an average of 398,410 loads of blueground was mined and hoisted each month, equal to 318,728 tons per month. Tunnelling during the year amounted to 62,859 ft. in blueground and 10,969 ft. in rock.

OTHER PRODUCERS

Of producers outside the De Beers Group, during the year Star Diamonds (Proprietary), Ltd., treated 48,903 loads of kimberlite and 8,851 loads of tailings, from which were recovered 14,962 ct. of diamonds. The carats per 100 loads of kimberlite treated was 28.6, and of tailings treated 10.88 ct. A total of 4,752 ft. was developed during the year.

Operations by Westar Diamond Mining Co. Ltd., consisted of treatment of 2,031 loads of blueground from a fissure. Because fissures being mined by Star Diamonds extend onto property being worked by Westar, it was decided at the close of the year to merge the two companies.

Mallin Diamond Mines, Ltd., produced 106,604 ct. of diamonds from 75,381 tons washed, for an average of 1.414 ct. per ton. The company's revenues from diamond sales for the year amounted to £208,917.

The alluvial diggings in South Africa showed a small increase in production, from 202,000 ct. in 1953 to 214,000 ct. in 1954.

The state owned and operated alluvial diamond mines in Namaqualand are located just south of the mouth of the Orange River, in the vicinity of Alexander Bay. Production has been maintained by the Government at about 100,000 ct. annually.

The alluvial diamond deposits of South West Africa are a northward extension of those in Namaqualand. They extend from the mouth of the Orange River north for approximately 300 miles to Conception Bay. The diamond mining rights to most of the area are held by the Consolidated Diamond Mines of South West Africa Ltd., under a concession extending to 1991. Small scale mining operations are carried out in the vicinity of Luderitz by Industrial Diamonds of South Africa (1945) Ltd.

Production by Consolidated Diamond Mines of South West Africa Ltd. has been steadily increasing up to 683,536 ct. last year.

Prosperity Poses New Problems for the Steel Industry

The steel industry has not merely withstood the impact of the economic crisis which has exercised such a depressing influence upon the stock and commodity markets: it has emerged stronger than ever. All the available evidence points to a continuance of the world hunger for steel and on both sides of the Atlantic there is a growing belief that demand will necessitate the attainment of new records of production during the first half of 1956.

Providing nearly 50 per cent of the world steel output the U.S. sets the pace, and it is significant that the latest returns indicate a weekly output of 2,300,000 tons which is equal to 95.7 per cent of maximum capacity. The majority of American producers have more commitments than they will be able to meet before the end of the year and the industry is heading rapidly into another round of steel making expansion with a target figure of 150,000,000 tons per annum in 1960.

West German steel makers promise a 1955 ingot output of 20,000,000 tons, the highest figure since the war, whilst the investment programme of the French steel industry group calls for the production, excluding the Saar, of 14,300,000 tonnes in 1957 compared with an estimate of 12,500,000 in the current year.

From further afield come reports of a steel shortage in Japan which is attributed to a growing shortage of raw materials particularly scrap. Whatever the reason a cut back in production is planned during the current quarter and the restriction of exports is under consideration. Not surprisingly Japanese steel prices have been advanced and it is feared that this will have serious repercussions upon the shipbuilding and other metal using industries.

Despite a straitened economy the Australian Government has completely exempted iron and steel from the recently imposed import restrictions and the Indian Minister of Commerce and Industry has announced that before the end of March next firm orders will be placed for the import of 1,000,000 tons of steel.

NEW PROJECTS

Meanwhile the Indian Government is going ahead with the project to erect three new steel plants each with an annual capacity of 1,000,000 tons and Mr. J. R. D. Tata, head of the great manufacturing company which bears his name, affirms that the new plants when completed will still leave the country short of its requirements of 6,000,000 tons per annum. The aid of private enterprise has therefore been enlisted and the Tata company has embarked upon an expansion programme which will increase the capacity of the plant at Jamshadpur from 600,000 to 1,300,000 tons per annum.

Incidentally, a delegation from the Indian Steelworks Construction Company, a consortium of British manufacturers of steel works plant and equipment, is now on its way to India to discuss the details of a project to establish a steel works at Durgapur in West Bengal with an annual capacity of 1,000,000 tons. The estimated cost of the works is £82,000,000 and it is hoped that the work will be entrusted to the British firms comprising the consortium. The one condition imposed is that the production costs of the new plant will not exceed that of the two other works now being installed in India by German and Russian contractors.

Another big steel works project which was thrown open to international competition is planned by the Government of Venezuela. This development is planned in two stages. The initial phase envisages an ingot output of 150,000 tons per annum and 250,000 tons for the second phase. In the face of keen British, American, German, Belgian and Norwegian competition the contract has been placed with the Fiat Motor Company of Turin but it is understood that sub contracts for equipment and other work will be entrusted to British firms.

Amidst all this welter of a world wide expansion of steel making capacity the British branch of the industry continues to prosper. In July last the Iron and Steel Board was emboldened by an improvement in the supplies of raw materials to forecast that last year's ingot output of 18,500,000 tons would this year be exceeded by a round 1,000,000 tons. Now the Board estimates that the figure may reach 19,750,000 tons, and as the annual rate in September was nearly 20,700,000 tons it does not appear to be an extravagant estimate.

U.K. EXPANSION

One certain fact is that the further expansion of British steel capacity must be accelerated to the utmost attainable limits. We are importing far too much iron and steel, and exporting too little. Of course, the vastly increased requirements of British industries cannot be neglected and a very large proportion of our steel output ultimately finds its way abroad in the form of engineering products.

But the scarcity of steel has involved a curtailment of direct exports which may fall short of the 3,000,000 ton target figure by about 400,000 tons. For similar reasons imports of iron and steel have been increased this year by about 100,000 tons a month and an excessive strain has thereby been imposed on our external credits.

Happily, home shortages if not overcome are in process of reduction to manageable proportions. Deliveries of finished steel to home users in July and August were 14 per cent higher than they were a year before and they are still rising. Next year it is hoped that the further expansion of production will enable all home requirements to be more promptly satisfied and a larger surplus become available for export. Marketing of increased tonnages of British steel abroad should not be difficult since, even with the addition of export premiums, our manufacturers can quote prices well below world levels. In this respect modernization of the steel plants has paid handsome dividends. In increased productivity per man hour, in fuel economy and reduced costs of production the post-war record of the British steel industry is unsurpassed anywhere in the world.

But there is one cloud on the horizon. Increased production involves an increased consumption of raw materials. Fuel supplies are adequate and scrap deliveries at present are reasonably good, although it is doubtful if the intake of foreign scrap can be maintained at the rate of about 100,000 tons a month.

The chief source of anxiety, however, relates to the winter supplies of iron ore. Deficiencies in the arrivals of foreign ore during the first half of the year have been overtaken and during the past three months have been running at the record rate of 14,800,000 tons per annum. Can that spurt be maintained? That is the crucial question, the answer to which is dependent upon the availability of sea transport.

Trimming and Dressing Low Grade Ores

By F. BICE MICHELL, B.Sc., A.C.S.M., M.I.M.M., M.I.M.E.

Owing to the prevailing interest in low grade mineral resources, the report of O.E.E.C. Mission 127 relating to the mining and dressing of low grade ores in Europe, published in the summer of this year, is of particular interest. The Mission comprised a tour of relevant centres in five European countries, and by providing the opportunity for discussion between delegates in addition to allowing for close study of the various research facilities was of marked value. The following article discusses the report of the Mission, in which the recommendations reveal the opinion that all was not completely well in Europe in this field of technology, and it was felt that a better insight might be gained into the problem by a first hand study of American methods and technological problems. Accordingly, the E.P.A. Mission No. 228 was organized by O.E.E.C. to the U.S.A. and Canada, and the forthcoming report of this tour is awaited with interest.

This report makes interesting reading and the mission has gathered together a great deal of information dealing with practice, research and some recent developments in Europe but although the title refers to both mining and dressing, much more emphasis has been laid on dressing problems and indeed mining is almost ignored in parts of the section dealing with European operations.

It is true that in the foreword of the report it is pointed out that while the relation between prospecting costs, mining costs and overheads per ton of ore remain more or less constant, the costs represented by milling (ore dressing) directly determine the earnings from a deposit and consequently ore dressing occupies a special position in the economics of low grade ores. Nevertheless, the references to mining are inadequate in a number of instances. It is interesting to recall that the same stress on ore dressing was apparent at the recent I.M.M. Symposium on Mineral Resources Policy when the desirability of forming a body to advise on dressing research was discussed at length together with recommendations for a central laboratory, but the overall picture of an adequate mineral resources policy, which should come first, received little attention. This wider aspect of any national, or indeed European, policy appears to have been given much too little attention.

ORGANIZATION AND CO-OPERATION

In the O.E.E.C. report, the first recommendation on "national organization" is that an organization should be set up in each Member country to encourage and advise on research in ore beneficiation, and that the activities of this organization should be linked to a national documentation and information service. Only later is it recommended that this body should carry out a long term examination of their country's low-grade deposits in collaboration with existing bodies responsible for geological surveys, evaluating, testing and devising schemes for exploiting them. Emphasis needs to be placed on this duty of any national body, not only in the O.E.E.C. report but in everything that is written or said about the matter, and we should not allow ourselves to be side-tracked on to *one* aspect only of the problem.

Promotion of international co-operation in research and documentation and the organization of international congresses is also recommended. It is gratifying to note that the latter has already been put in effect through the good offices of Monsieur P. Seyer, General Mining Engineer at the French Ministry of Industry and Power, who was largely responsible for the idea which culminated in the first International Ore Dressing Congress organized by Western Germany and held at Goslar in May last. It will be recalled that previously in 1952 a most successful Ore Dressing Symposium was organized in London by the Institution of Mining and Metallurgy, while a similar event took place in Paris in 1954. Although both of these meetings were of a more national character, they no doubt provided part of the inspiration for the Goslar meeting. This latter was a great success and there is no doubt that regular meetings of this nature improve co-operation between specialists in different countries, and are well worth the considerable amount of organization and expenditure involved.

ASPECTS OF THE REPORT

As far as research is concerned, the provision of wider facilities is recommended by the O.E.E.C. Mission, especially more pilot plants. This is a strong point. It is also suggested that private firms and research institutes should publish the results of their investigations to a greater extent. This is certainly desirable from a national point of view, but certain difficulties exist in the field of non-metallic minerals where reluctance to publicize results is due to severe competition and is found not only in Europe but also in the U.S.A.

Suggestions are also made to improve recruitment and education in ore-dressing and that existing courses, particularly practical courses, should be greatly increased. This may be desirable in Europe but in the United Kingdom laboratory work occupies more time than lectures.

The mission also urged that more equipment on a generous scale should be provided for the practical side of training, and both Government and industrial firms are urged to support these endeavours.

Lastly, the report suggests that there should be improved co-operation between mill and smelter. This is a strong point, as the demand for exceptionally pure concentrate by the smelter can result in heavy losses in certain ore dressing operations. For example, owing to ease of dressing, it is customary to base tin smelter contracts in Malaya on a very high concentrate grade with heavy penalties for certain impurities. As lower grade material is handled it obviously becomes increasingly difficult to maintain the recovery and in the case of tin ores, great assistance can be given to low grade operators by providing special schedules for lower grade concentrates. Fortunately, in the United Kingdom such schedules do exist and are of great value to concerns working accumulated tailings from previous operations. With tungsten ores, there is a similar tendency for very rigid schedules, although some are less stringent on the Continent.

The economic relations between recovery and the value of the concentrate taken by smelters has not been sufficiently studied. In some cases the production of lower grade concentrate at a lower value, taking into consideration payment of penalties, is economically more sound than the production of a higher grade material.

Furthermore, it is sometimes desirable to make two grades of concentrate, a high grade for the bulk of the values and a secondary lower grade product to maintain a high overall recovery.

Most interesting curves can be produced by plotting the monetary value of the concentrate produced from a unit of mine ore, against the grade of concentrate from which the most economic level can be ascertained.

The question of comminution which, of course, accounts for the greater proportion of dressing costs has been considered at length in the report. Particular mention is made of the impact crusher as used at Mechernich to achieve selective reduction, which together with pre-concentration at a coarse size can help reduce costs on low grade ores.

The advent of the long hoped-for invention of cassiterite flotation is mentioned as a possible means of re-opening old mines, and would mean a revolution in tin mining. As we see it now, however, it seems quite possible that such an invention might not mean re-opening "scores of old mines" as all work to date has indicated that with methods such as have been tested in the laboratory, the reagent costs may be high and economically no better than existing practice. It must be remembered that an 80 per cent recovery or better can be made by gravity in modern plants even on quite finely disseminated ores whilst many flotation processes for oxidized minerals do little better, and it is no use devising a process which does not improve on an existing technique. In certain instances, it is more reasonable to suggest that pre-concentration might be the solution.

Another example given is the difficulty of up-grading scheelite ores in Sweden, where fluorite also occurs. This is frequently a difficult problem and little publicity has been given to the work at King Island, Tasmania. At this mine, when all else failed, the old and near obsolete "vanner" has been used successfully to up-grade flotation concentrate. This is particularly interesting in view of the fact that the mission have suggested that more attention might be given to investigations of the vanner. It is also interesting to note that work is being done to develop new forms of such concentrators.

In the second part of the report, various technical features and research either seen or discussed are detailed. In dealing with gravity concentration, it is stated that no machine can be used for treating material below 50 microns. This is virtually untrue as the vanner and certain types of frames will concentrate material well below 300 mesh or approximately 50 microns, albeit not as efficiently as somewhat coarser material.

Observations on the Hemerdon wolfram plant are interesting and indeed some of the points might be considered by anyone attempting re-working this property. In particular, the question of clay removal is important and should be done before any appreciable size reduction occurs.

New Applications for Photocells in Mining

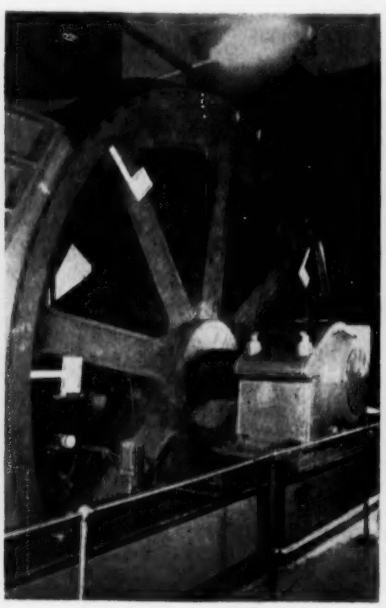
Mechanization and the modern trend towards fully automatic supervisory and control systems have led to a much wider use in industry of the photocell. In collieries, in particular, photoelectric equipment is now finding many new and varied applications, the equipment making for improved and safer working. There appears to be considerable scope for similar uses of photocells elsewhere than in coal mining alone, particularly in metalliferous mining applications and the following article, condensed from a report prepared by The General Electric Co. Ltd., while describing the immediate usage of the photocells, simultaneously gives rise to interesting considerations as to the possible extended employment of the device.

The possibilities of photoelectric devices for colliery use can be best appreciated by considering some of the new applications where standard photoelectric equipment is now being employed in this field.

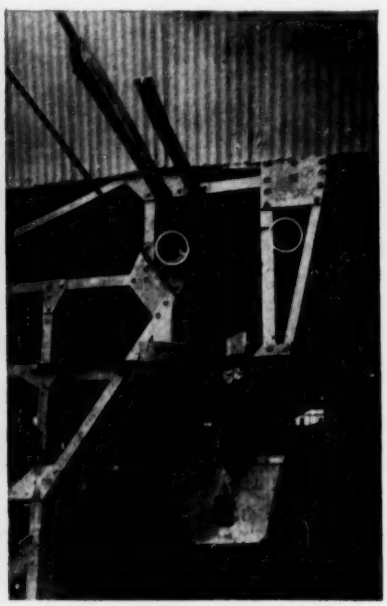
At Llay Main Colliery, North Wales, a photoelectric signalling system has recently been installed to speed up coal-winding operations. When a cage reaches the unloading position at the top of the shaft, a lug on the side of the cage intercepts a light-beam shining on a photocell. This at once causes an indicator lamp to light in the winder house, so that the winding engine operator is able to check the cage at the right level.

The installation, the first of its kind made for this purpose, has resulted in greatly improved efficiency. Though

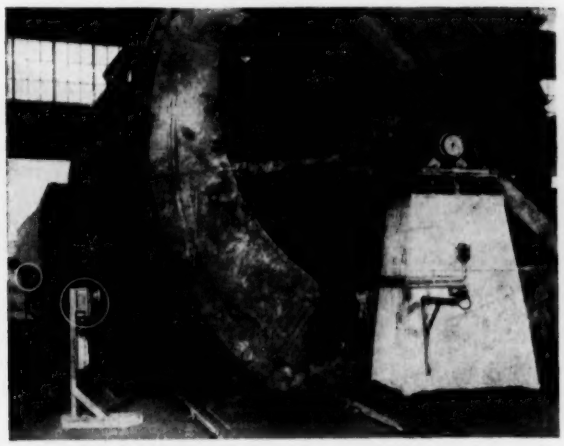
Rubber lug on side of cage at Llay Main Colliery



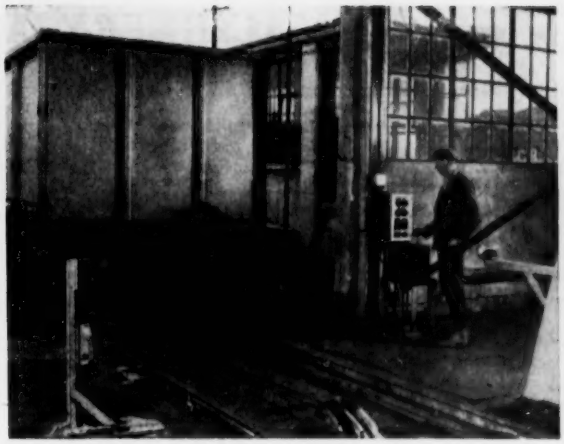
White shutters rotating with under drum at Thoresby Colliery



Warning system (left circle) and light source (right circle)



Photoelectric equipment (ringed) at Barnburgh tipping station



Photoelectric relay at Barnburgh tipping station

the shaft is one of the deepest in the country (it is 1,005 yd. deep) and deck-changing is employed, 45 runs an hour are obtained using the photoelectric indicator as a cage-positioning guide.

A photoelectric relay and associated lamphouse have been installed on the side of the shaft, the beam from the lamphouse falling on the photocell. The small photoelectric signal resulting from this is amplified and keeps a relay in the "open" position. A rubber lug is mounted on the side of the cage in such a position that it will, as the cage rises, intercept the light beam just as the deck of the cage comes flush with the approach rails. As soon as the light beam is interrupted, the photoelectric signal ceases and the relay mentioned above closes. This completes a circuit which incorporates an indicator lamp located in the winding shed in front of the winder operator. The indicator lamp is illuminated and the operator at once stops the winder.

SLACK ROPE ALARM

At Thoresby Colliery, Nottinghamshire, where keps are used for locating the cages, photoelectric equipment has now been installed to ensure that the winding engine will not start to lower the cage until the keps have been withdrawn.

A photocell and lamphouse are aligned in such a way that metal shutters mounted on the winding drum interrupt the light beam as the drum rotates. If, therefore, the winding engine starts to lower while the cage is resting on the keps, the shutters, as they revolve with the drum and intercept the beam, automatically initiate the alarm.

Four shutters, painted white, cover the two cages and the two bank levels used. They are distributed round the drum in such a way that movement is limited once the cage is resting on the keps

DEVICE FOR SKIP DOORS

The Electrical Engineers' Department at Thoresby Colliery has also devised a photoelectric system which prevents the skips entering the shaft if the skip doors are not fully shut.

The skip door when shut, is held in position by a catch which drops home. When the door is open and the catch is lifted, a light located on top of the skip comes on and remains on until the catch drops home again. The photoelectric equipment is installed at the top of the shaft so that it is directly opposite this light when the skip is at the top. When a light shines on this photocell the resulting signal is amplified and operates a relay which illuminates a signal in the banksman's cabin and in the winding engine house. As soon as the skip door has shut and the catch has dropped home, the lamp on the skip goes out and the "skip door open" signals are switched off.

WARNING SYSTEM FOR ROPEWAY

At Thoresby Colliery the waste material is carried to the waste heaps by means of an aerial ropeway, and here again a photoelectric warning system has been introduced. As each bucket comes in, it intercepts a light beam and this initiates an alarm bell, which warns people to stand clear.

This warning system utilizes two sets of photoelectric equipment; one to start the warning and the other to stop it. In each case lamp-house and photocell used are aligned directly above the bearing rail, so that the bucket-carrying wheels intercept the beam. As the bucket comes in the wheels interrupt the first light/beam and the resulting photoelectric signal after amplification, operates a relay which switches on the alarm bell. The bell then sounds until the bucket-wheels interrupt the second light beam and switch the bell off again. The distance between the two sets of equipment is 21 ft., this interval providing all the warning that is necessary. If the bulbs in either light source fail, the alarm automatically sounds at once.

CONTROLLING TIPPING OPERATIONS

At the Barnburgh tipping station in the Manvers Central Coal Preparation Plant, Yorkshire, photoelectric equipment has been installed to ensure that the track on either side of the tipper is clear before the tipper is operated.

The wagons are brought in at one side of the tipping station and are emptied. The tipper then returns to the horizontal position and another full wagon is brought in, the empty wagon passing out of the tipping station on the other side. The two photoelectric relays which safeguard this operation are situated on either side of the tipper and each is aligned with its associated lamphouse.

If either of the two light beams is interrupted, the resulting variation in the photoelectric signal, after amplification, operates a relay. This, in turn, automatically prevents the tipper from operating and at the same time switches off the green all clear lamp on the control panel so that the operator is informed of what has happened.

MACHINERY AND EQUIPMENT

A Permanent Timber Preservative

Originally developed for use in cooling tower packings, the Tanalith C preservative developed by Hickson's Timber Impregnation Co. (G.B.) Ltd., is presented as a proof against soft rot. This form of decay is caused by a small group of moulds and was unrecognized until comparatively recently. Indeed, the excessively hot and wet conditions prevailing in water cooling towers were too wet for other forms of decay, but favoured the soft rot moulds.

It was realized almost at the outset of the experimentation from which the new preservative was evolved that one of the essential attributes would have to be an exceptionally high fixation of the individual elements of the predecessors Tanalith U was made, and from this and related research Tanalith C was produced.

Tanalith C is supplied as a free flowing dry powder which is dissolved in water, prior to impregnation by vacuum pressure, hot and cold open tank, or the Buocherie method. The preservative becomes 80 per cent fixed in the timber within 24 hours of treatment and is completely fixed long before the timber has re-dried. As it contains no volatile constituents, Tanalith C is classed as a permanent preservative. This classification means in addition that the substance does not generate inflammable vapour.

It is thought that no other wood preservative in commercial use is fixed so highly at 97 per cent. Wood is completely workable after treatment and the application in the mining industry is obvious.

Impregnation of timber with Tanalith C can be carried out at 32 plants located in various parts of the country. The wood absorbs between one and four gallons of preservative per cu. ft. It is stated that the cost of treatment approximates 12 per cent of the cost of the timber.

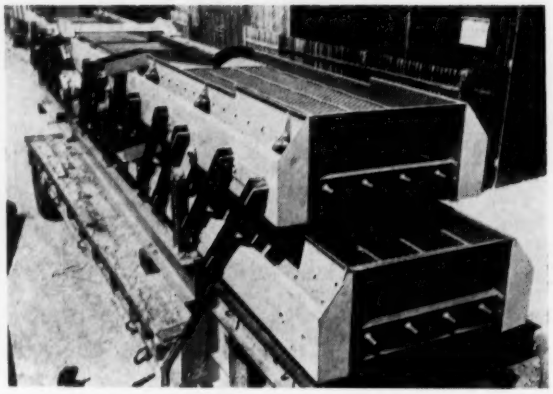
"Binder" System of Vibrating Conveyors

An interesting new system of vibrating conveyors which are suitable for a wide variety of purposes in mines, etc., has recently been developed by an Austrian firm.

Irrespective of whether these vibrating conveyors are ultimately designed to serve either as conveyors or screens, they consist of the following basic parts: Two oscillating frames or elements, one arranged vertically above the other, connecting bars and associated bearing supports; the drive, consisting of a direct acting double eccentric system which causes the two frames to vibrate against each other; and the driving-motor which can be mounted above, below, or at the side of the machine as desired.

The Binder system is based on the principle of two masses vibrating in a reciprocating action. The vibrating masses of the system are perfectly balanced, i.e., the two vibrating elements move against each other in such a way that the forces due to the kinetic energy of the oscillating masses are balanced as regards magnitude and direction at all points on the reciprocating cycle. It thus follows that the vibrating masses transfer no forces or momentum to the supports or foundations of the machine. In addition the balancing of the masses admits the use of relatively great accelerations—up to six times the acceleration due to gravity—and large angles of projection and long trajectories.

The mass forces of the vibrating elements and the elastic forces of the springs are in resonance, hence there is a continuous interchange of energy between the kenetic energy of the masses and the potential energy of the springs. The numbers, positions and elasticity constants of the resonance springs are so arranged as to absorb the kinetic energy of the oscillating masses. It follows that this operation by means of resonance permits the use of relatively small driving elements, a very small expenditure of energy being sufficient to cause the continuous motion of large masses. The operation by means of resonance is therefore a fundamental prerequisite of the construction of large-scale vibrating machines.



Vibrating screen V4 S/1000 for gravel

The system is operated by a positive drive consisting of a double eccentric arrangement which permits the same impulse both as regards direction and intensity to be driven simultaneously to all the vibrating parts. This arrangement results in uniform positive travel of the material being conveyed, and in addition permits control of the amplitudes of the two vibrating elements allowing the machine to be regulated to suit the requirements of either coarse or fine screening or the varying conditions regarding transportation of material.

As far as possible, the components of the oscillating elements of the machines must be kept out of the range of their natural frequency in relation to the frequency of the driving elements, otherwise zones of self-sustaining oscillation may develop, severely interfering with or completely preventing the vibration of the system; and accordingly, as a general rule, the components of the oscillating elements should be designed to combine a maximum of inertia with a minimum of weight.

This problem has been solved by developing a new system of vibration beams. Two such beams are arranged one above the other on each side of the conveyor. Each pair of side beams are connected together by symmetrically arranged resonance springs thereby forming a two mass system capable of vibrating. The pairs of side vibration beams are joined by transverse yokes to form a frame to accommodate the conveyor troughs or vibrating screens. This construction has the advantage that it does admit the building of vibrating conveyors and screens in sizes and lengths never before achieved.

Vibrating tube conveyors are eminently suitable for the transport of hot materials with temperatures of up to 500 deg. C. (e.g. cement clinker). Vibrating tube conveyors are able to overcome gradients of up to 30 per cent, and a motor of 10 h.p. is sufficient to operate such a conveyor 100 m. long carrying hot cement clinker at the rate of 180 tons per hour. The manufacturers are the Austrian firm of Ludwig Binder, of Graz.

Diesel Electric Shunter for N.C.B.

Yorkshire Engine Co., a branch of The United Steel Companies, Ltd., recently delivered the first diesel electric surface shunting locomotive to be purchased by the East Midlands Division of the N.C.B. This 400 h.p. locomotive is of the 0-6-0 type and will be used for haulage work over some 2¼ miles of track between the Division's Coppice Colliery at Shipley, Derbyshire, and the Nutbrook Sidings of British Railways. The approximate loads to be hauled range between 320 tons to 1,840 tons.

The new Yorkshire locomotive has a total weight of 50 tons, a tractive effort of 30,000 lb., and a braking effort of 75 per cent on 50 tons. Fuel consumption is 2½ g.p.h. The dimensions of the locomotive are coupled wheel diameters, 44 in., length over buffers, 28 ft. 6 in., overall width, 8 ft. 4¼ in., and maximum height, 11 ft. 6 in.

METALS, MINERALS AND ALLOYS

From Washington this week comes the O.D.M.'s half-yearly report to June last on progress with the stockpile programme. As usual the overall expenditure figures given are, for security reasons, not broken down by commodity, so that we only get a general impression from the report.

There are, of course, now four separate stockpile programmes —(1) the "minimum stockpile" which is the original stockpile programme designed to serve purely strategic and defence requirements; (2) the "long-term stockpile" which is a domestic price-support programme applying primarily to lead and zinc; (3) the "supplementary stockpile" which is a method of utilizing foreign currencies acquired through the sale of surplus agricultural commodities (in practice virtually no use has been made of this facility); and (4) direct barter of U.S. farm surpluses for foreign strategic materials for the stockpile.

The most significant point arising from the report is the further confirmation that aside from about half a dozen minerals (including copper, aluminium and nickel) for which the stockpile programme is unlikely to be complete for several more years, quantities on hand and on order, together with the estimated domestic production and imports, are practically sufficient to meet anticipated defence requirements for the whole of the remaining 70 odd items on the minimum or strategic stockpile programme. Where minimum objectives are close to being met the rate of procurement is being tapered off so that withdrawal of stockpile purchases will be gradual and will have the least possible unsettling effect on the market.

An interesting point revealed in the report is the extensive use which has been made of direct barter facilities. During the first six months of this year, barter contracts were negotiated for deliveries to a total value of approxmiately $185,000,000. Practically all of these contracts involved the exchange of surplus agricultural commodities for strategic materials which will be transferred to the stockpile.

Mr. Felix Wormser, assistant secretary of the Interior for Mineral Resources, made some fairly scathing comments recently in an address to the Californian Natural Gas Association on the subject of the pressure being exerted on Washington to curb exports of scrap. Referring to the "so-called" shortages of copper, aluminium and steel, Mr. Wormser is quoted by the *American Metal Market* in the following terms. "I say 'so-called' because in a really free market there seldom can be more than a temporary shortage, for the price will rise to equate supply with demand. What these industries are really saying is that if they had more product they could sell it at currently profitable prices. But it isn't available.

"So what do they do? They come to Washington and ask the Government to use a New Deal law to curb exports, not of their own products, not of their own manufactures, but to curb exports of scrap which they buy.

"In other words the Government is requested to control part of an industry to favour the balance. To me, this seems like a shocking use of Government power. If this isn't rank discrimination, I don't know the meaning of the term."

COPPER.—In the U.S. the price split continues as between domestic producers and custom smelters, the latter currently quoting from 2-2½ c. above the producers' 43 c. level. Whether this gap will close depends first on how the free market price moves (this week the London price has been a little firmer) and secondly on whether the custom smelters continue to recognize, and cash-in on, the fact that the American producers are still selling below the market or whether now that the differential is much smaller, producers will get them back into the fold if only for appearances sake.

Further to the news reported here last week regarding the U.S. Treasury ruling that copper brought in the first half of 1956 would count as 1955 copper for L.I.F.O. tax purposes, it would appear that this relaxation is not without "ifs" and "buts". In the first place buyers are required to show a copper certificate (i.e. a storage receipt) and beyond this the Treasury states that it has made no blanket ruling but will consider each application on its merits. This probably means that as in the last fiscal year the Treasury will again make the concession where it can be shown that deliveries were delayed because of labour strikes. In any event the effect of this relaxation seems likely to ease the necessity of rush buying before the end of this year to avoid a heavy L.I.F.O. liability.

Apropos this week's "Notes and Comments" on the Chilean copper position, it is interesting to observe the extent to which the Chilean Government is still in a position to influence overall sales policy, although under the new copper mining law the companies are nominally free to sell their own copper. We drew attention to this interesting position back in August at the time when the Government's Copper Department announced an agreement with Anaconda and Kennecott to sell about two-thirds of their output in Europe beginning next year. We now have further evidence of the Government's determination to sell a major part of its copper in the free market in this week's news that the Copper Department has rejected a suggestion that an additional proportion of future sales might now be diverted to the U.S.A. in view of the lower European price. It is apparently the Copper Department's view that the fall in the L.M.E. price is only temporary as there has been no fundamental change in the supply demand situation.

The Copper Department has also revealed that Chilean output this year will be in the neighbourhood of 420,000 tons against about 350,000 tons last year. Production during the first half of next year is forecast at 220,000 tons. Output is also fully sold through to next June.

A new copper property in the Philippines is scheduled to come into production around next March. This is the Mindanao Mother Lode's new property at Cabangan, Zambales, which has a scheduled mill capacity of 300 tons per day although initially operations will be at a lower rate than this.

According to *The Financial Times* further progress is being made with the establishment of a mine on the site of King Solomon's copper workings, 15 miles north of Ileat on the Red Sea. It is expected that the smelter will be erected in about two years' time with a daily capacity of about 1,500 tons and an expected annual output of 7,000 tons of metal. Work has commenced on the construction of a water reservoir at Timna.

LEAD.—In the States, lead appears to have eased somewhat after the previous week's insistent demand, which was apparently in part generated from a belief that the price might go higher. An attempt may, of course, still be made next month to test the G.S.A.'s readiness to buy at 16 c., but meanwhile, the likelihood of any increases above 15½ c. appears to have receded.

The Société Penarroya-Maroc, the Morrocan subsidiary of the French group of that name, has announced plans to absorb the Société Minière du Haut-Guir in which it already has a controlling interest. This latter company is a lead and zinc producer with an annual output of, it is believed, around 5,000 tonnes of galena.

TIN.—Malayan tin output, which this year has been consistently running above last year's figures, has now led the Department of Mines to revise its earlier forecast of a decline in this year's total. Actual figures for the first nine months of this year amount to 45,889 tons compared with 45,059 tons in the corresponding period of last year. An official of the Mines Department has stated that, while it is difficult to give a reason for the increase, a number of new mines have in fact been opened. No particulars of these are available although presumably they represent mainly an increase in the Chinese section of the industry. Nevertheless, the problem of maintaining this output in the face of diminishing ore reserves must become progressively more acute, and in the absence of large-scale prospecting more economical recovery from low-grade ground may soon be a matter of extreme urgency.

For about a week now there has been no further news of the strike called on the tin fields of Northern Nigeria by the Nigerian African Mineworkers' Union. In any event the stoppage appears to be only partial with several of the mines affected only to a very minor extent.

Interesting in connection with our leading "Notes and Comments" this week on the Indonesian political scene is a recent statement by a Foreign Ministry spokesman that the Indonesian Government will endeavour to present the I.T.A. to Parliament for ratification before the end of this year. The likelihood of ratification is to some extent dependent on the make-up of the new government, which is the subject of consideration in our note.

According to A. Strauss and Company's monthly market letter, an increase of about 20 per cent is envisaged in United States and British tinplate consumption within the next two years. This would represent an increase in tin consumption of about 8,000 tons per annum assuming a continuation of the present coating thicknesses; while if free world consumption were to advance overall at a corresponding rate, the total increase in demand from this source might well be above 12,000 tons of tin. If these forecasts prove correct the operation of

the Tin Agreement may turn out considerably less painful than at one time seemed likely.

The revolutionary fervour, which accompanied the installation of the present Bolivian régime would now appear to have largely cooled off. Such at any rate is the conclusion to be drawn from a recent warning from the Bolivian Minister of Mines to the mine union leaders to refrain from intervention in administrative and technical matters relating to the operation of the nationalized mines. This rebuke has been followed by a visit to the Ministry by a delegation of mineworkers from Oruro and Pototsi who have re-affirmed their adherence to the government's principles and mining policies. All of which notwithstanding, Bolivian production is definitely on the decline—at any rate on the basis of export figures which totalled 34,800 tons in 1953, 28,800 in 1954, and 18,200 tons during the first eight months of this year compared with 18,950 in the corresponding period a year ago.

A significant passage in the O.D.M.'s half-yearly report on the stockpile programme (referred to above) is the assertion that the minimum stockpile objective for tin has been achieved and that the long term objective will have been achieved by the end of the fiscal year 1956, at which point stocks will be sufficient to meet any foreseeable emergency. The fulfilment of the stockpile objectives, states the report, brings to an end any defence justification for the continued operation of the Texas smelter by the government. It is unlikely that a government smelter will again be required for defence reasons but should this occur the size of the present stockpile leaves adequate time for the building of a smelter "more suited to our needs than the present facility" (i.e. an economically competitive unit!).

ZINC.—In the event, last week's attempt by Eagle-Picher St. Joseph Lead and New Jersey Zinc to hoist the zinc price by another ½ c. has proved abortive and the split price has for once in a way been resolved in favour of the lower 13 c. level to which these companies returned at the beginning of this week. It would appear that in the first instance the remainder of the producers hesitated to follow this price lead owing to uncertainty as to the G.S.A.'s reaction. Consumers then hastened to take advantage of this hesitation by energetic action through the American Zinc Institute, which issued a statement characterising the advance as "unwarranted and unnecessary" and suggesting that if confirmed it would have an adverse effect on future untilization of the metal, notably in the automobile industry.

However, so far as this high grade section of the market is concerned, consumers have not got away scot free, as the majority of producers have now announced forthcoming increases of a ¼ c. in the premium price for special high grade metal, bringing the premium up to 1¼ c. per lb. above the prime western price. A consequence of this may be that some users of special high grade—other than die casters—may consider using a lower grade of material, in which case the price rise will have served a useful purpose in easing the pressure on special high grades.

ALUMINIUM.—Increasing pressure on deliveries has led Aluminium Ltd. to the decision to install further pot lines at Alcan's smelter in the Saguenay River district to yield a further 22,000 tons of primary metal per annum above the present capacity of 92,000. This will bring the company's smelter capacity in Quebec up to 569,000 tons (presumably within the next couple of years), while by 1959 Kitimat should be producing about 330,000 tons. In total, quite an output!

French aluminium production during the first nine months of this year totalled 97,079 tonnes, compared with 92,982 tonnes in the corresponding period of last year. Of this production over 80 per cent came from the Pechiney organization.

The London Metal Market

(From Our Metal Exchange Correspondent)

Interest has been at a low ebb on the market during last week, as in this country uncertainty existed owing to the imminence of the Budget, and overseas there seemed to be a general desire to reassess the level of prices to be expected during the rest of this year.

In the copper market buyers slightly predominated and, therefore the price tended to rise, but the turnover was small and the further diminution in stocks had little effect on the backwardation. In America there is a growing reluctance to purchase copper at any price above the producers' level of 43 c. per lb., and, although it will probably take many weeks before this level is finally established, the progression in that direction is likely to produce a downward tendency in London. In Germany the economic situation is not as rosy as it was, and steps which are being taken there to rectify the adverse trade balance may have some effect on the demand for metals.

The tin market has been firmer on the trouble in Nigeria and on the very good figures for the output of tinplate throughout the world. Stocks again decreased this week and the backwardation has shown a tendency to widen. It is now hoped that Indonesia will consider signing the International Tin Agreement at the end of the year, but many people are of the opinion that as there will be no sense of urgency it will not be done. On Thursday morning the Eastern price was equvalent to £764½ per ton c.i.f. Europe.

The demand for lead continues, but this metal may be one of the first to suffer from any reductions in capital expenditure both in this country and elsewhere. Little is now heard of the possibility of an increase in the U.S. price.

For the first time for many years consumers have scored a victory inasmuch as the rise in the U.S. zinc prices initiated by a few companies was not followed by all producers, with the result that the 13 c. per lb. level was re-established. This is probably explained by the fact that this price refers only to Prime Western zinc of which there is a good supply, whereas high-grade zinc which is in short supply is now being offered at a higher premium than before. The gyrations in the U.S. caused little movement in London where the price has tended to sink owing to lack of interest.

Closing prices and turnovers are given in the following table:—

	October 20		October 27	
	Buyers	*Sellers*	*Buyers*	*Sellers*
Copper				
Cash	£351	£352	£357	£357½
Three months	£339½	£340½	£344	£345
Settlement	£352		£357½	
Week's turnover	5,775 tons		3,325 tons	
Tin				
Cash	£760	£761	£770	£771
Three months	£749	£749½	£754½	£755½
Settlement	£761		£771	
Week's turnover	805 tons		580 tons	
Lead				
Current half month	£106¾	£107	£106¼	£106¼
Three months	£106½	£106¾	£106¼	£106¼
Week's turnover	2,375 tons		3,525 tons	
Zinc				
Current half month	£91½	£91¾	£90¾	£91
Three months	£91	£91¼	£90½	£90¾
Week's turnover	6,650 tons		5,500 tons	

OTHER LONDON PRICES — OCTOBER 27

METALS

Aluminium, 99.5%, £171 per ton
Antimony—
English (99%) delivered, 10 cwt. and over £210 per ton
Crude (70%) £200 per ton
Ore (60% basis) 23s. 6d./24s. 6d. nom. per unit, c.i.f.
Bismuth
(min. 1 ton lots) 16s. lb. nom.
Cadmium 11s. 6d. lb.
Chromium, 6s. 11d. lb.
Cobalt, 21s. lb.
Gold, 250s. 3½d.
Iridium, £30 oz. nom.
Manganese Metal (96%-98%) £269 according to quantity
Magnesium, 2s. 4d. lb.
Nickel, 99.5% (home trade) £519 per ton
Osmium, £24/27 oz. nom.
Osmiridium, £40 oz. nom.
Palladium, £7 10s./£8 0s. oz.
Platinum U.K. and Empire Refined £29 oz. Imported £36/36 10s. oz.
Rhodium, £40
Ruthenium, £17 oz.
Quicksilver, £91 10s. 0d. ex-warehouse
Selenium, 72s. nom per lb.
Silver, 79½d. f.oz. spot and 79½d. f'd
Tellurium, 16s. lb.

ORES, ALLOYS, ETC.

Bismuth .. .. 30% 5s. 0d. c.i.f.
20% 3s. 3d. lb. c.i.f.
Chrome Ore—
Rhodesian Metallurgical (semi-friable) 48% £15 2s. 6d. per ton c.i.f.
,, Refractory 45% .. £14 2s. 6d. per ton c.i.f.
,, Smalls 42% .. £12 2s. 6d. per ton c.i.f.
Magnesite, ground calcined .. £26-£27 d/d
Magnesite, Raw .. .. £10-£11 d/d
Molybdenite (85% basis) .. 105s. 0d.-108s. 0d. per unit c.i.f.
Wolfram and Scheelite (65%) .. 257s. 6d./262s. 6d. c.i.f.
Tungsten Metal Powder .. 21s. 5d. nom. per lb. (home)
(98% Min. W.)
Ferro-tungsten (80%-85%) .. 18s. 5d. nom. per lb. (home)
Carbide, 4-cwt. lots .. .. £39 3s. 9d. d/d per ton
Ferro-manganese, home .. £54 10s. 0d. per ton
Manganese Ore Indian c.i.f. Europe (46%-48%) basis 100s. freight. .. .. .. 84d. per unit c.i.f.
Manganese Ore (38%-40%) .. 69d. per unit
Brass Wire .. .. 3s. 3¾d. perlb basis
Brass Tubes, solid drawn .. 2s. 8½d. per lb. basis

THE MINING MARKETS

(By Our Stock Exchange Correspondent)

The past week, as is common with pre-budget periods, was a quiet one in the Stock Exchange, and price movements were on a modest scale. Government stocks were steady and clearly some investors were using them as a hedge against the Chancellor's budget proposals. The actual effect of the budget on markets will come too late for detailed reporting this week, but the initial feeling was one of disappointment that financial reforms were not more radical. Gilt-edged remained steady but industrial shares were sharply advanced. Mines were unchanged.

For Kaffir shares there was modest continental support and resistance in Johannesburg to selling at to-day's prices, but business remained at a low level. Among finance houses there was little of interest to report and changes among individual mines mainly followed the recent quarterly results.

Blyvooruitzicht propose erecting a new sulphuric acid plant, but this and improved returns from Durban Deep and Luipaards Vlei left all three virtually unchanged. The excellent results from West Driefontein, coupled with the higher profits, brought in a fair demand for the shares which moved ahead sharply. One of the best features was Vogelstruisbult where press comment on the medium term outlook for the property attracted continental support.

In the Orange Free State, speculative demand developed for Merriespruit following unconfirmed rumours of good development results obtained during the current quarter. Considerable interest centred on Harmony; improved development results and higher profits coupled with the expectation of a rich field of development in the new shaft area, were offset by reports of a labour shortage and the strong probability that the company will require fresh working capital in the not distant future. Orange Free State Investment Trust shares also reacted to the better feeling in this market and rose on quiet investment demand.

In the West Africans and West Australians there was little of interest to report. Prices tended to drift lower and there was a noticeable lack of enthusiasm for Ashanti.

In the miscellaneous gold section Camp Bird have declared a second interim dividend of 12½ per cent making 20 per cent for the year, it should not be assumed that a final dividend will be declared. Frontino Gold Mines, the old Columbian producer, have declared dividends totalling 15 per cent against 10 per cent previous. This will partly explain the big rise in the value of the shares during the past year.

Copper shares enjoyed a substantial recovery, aided by the firmness of Wall Street and the fact that companies registered outside this country are also outside the clutches of the Chancellor of the Exchequer. This was later endorsed by increased dividends from Rhokana and Rhodesian Anglo American. Demand for Chartered was particularly good and Tanganyika Concessions went ahead due to the good results from the Benguela Railway. Chibuluma have started hoisting ore. This aided Rhodesian Selection Trust who are substantially interested in this company. Fresnillo at one time 3⅞ later reacted to 3⅛. The company has substantial development plans in hand and experienced management has helped this Mexican property. Esperanza fell due to the continued troubles in Cyprus.

Eastern tin shares failed to find support in the steady metal price. The increased dividend by Kamunting caused an initial rise in these shares which was not held. Among Nigerian and miscellaneous mines, the completion of premium columbite sales by Amalgamated Tin and the start of a native labour strike on the property caused a setback in the share price. Beralts were unchanged despite the lower wolfram price.

Barriers generally improved due to good sales of lead and zinc. Broken Hill South which recently declared an increased distribution announced higher profit figures for the past year. Speculative demand for Lake George Mines developed late in the week.

Finance	Price Oct. 26	+ or — on week
African & European	3¼	+ 1/16
Anglo American Corpn.	8⅛	+ ⅛
Anglo-French	22/-	+ 6d
Anglo Transvaal Consol.	25/7½	
Central Mining (£1 shrs.)	43/6	+ 3d
Consolidated Goldfields	57/6	+ 6d
Consol Mines Selection	38/9	+ 7½d
East Rand Consols	2/-	
General Mining	4⅛	
H.E. Prop.	7/9	
Johnnies	40/3	+ 3d
Rand Mines	3 3/16	+ 1/16
Rand Selection	42/6	
Union Corporation	48/6	+ 1/6
Vereeniging Estates	4 1/16	+ 1/16
Writs	38/9	+ 7½d
West Wits	37/6	+ 6d
Rand Gold		
Blyvoors	26/9	+ 3d
Brakpan	6/3	
Buffelsfontein	34/9	—3d
City Deep	11/-	+ 6d
Consol. Main Reef	21/10½	
Crown	2 3/16	
Daggas	2⅛	+ ⅛
Dominion Reefs	25/6	—1½d
Doornfontein	24/6	+ 6d
Durban Deep	31/3	
E. Champs	5/-	
E. Daggas	10/3	+ 3d
E. Geduld (4s. units)	31/-	
E. Rand Props.	2 1/16	
Geduld	4⅛	
Govt. Areas	6/3	
Grootvlei	22/9	
Hartebeestfontein	35/-	
Libanon	8/3	+ 3d
Luipaards Vlei	18/-	
Marievale	21/9	+ 6d
New Kleinfontein	6/3	
New Pioneer	12/6	+ 3d
Randfontein	49/6	—3d
Robinson Deep	16/-	+ 4½d
Rose Deep	10/-	
Simmer & Jack	4/-	
S.A. Lands	23/1½	+ 1/3
Springs	3/7½	—1½d
Stilfontein	26/9	+ 3d
Sub Nigel	36/3	+ 1/3
Vaal Reefs	30/-	—3d
Van Dyk	3/9	
Venterspost	14/3	+ 3d
Vlakfontein	17/9	+ 3d
Vogelstruisbult	30/9	+ 1/9
West Driefontein	5 1/16	+ ⅛
Rand Gold contd.		
W. Rand Consolidated	40/-	
Western Reefs	37/3	+ 1/-
O.F.S. Gold		
Freddies	7/3	+ 3d
Freddies Consolidated	4/9	+ 1½d
F.S. Geduld	4 1/16	
Geoffries	15/-	+ 3d
Harmony	30/3	
Loraine	7/3	—3d
Lydenburg Estates	15/7½	
Merriespruit	9/6	+ 9d
Middle Wits	13/6	+ 6d
Ofsits	62/6	+ 1/-
President Brand	66/3	
President Steyn	33/6	+ 9d
St. Helena	27/6	
Virginia Ord.	11/6	
Welkom	17/6	
Western Holdings	3⅛	+ 1/16
West African Gold		
Amalgamated Banket	2/-	—1½d
Ariston	5/9	—1½d
Ashanti	21/-	—9d
Bibiani	4/-	—3d
Bremang	1/3	
G.C. Main Reef	2/6	—1½d
Kononga	3/-	—1½d
Lyndhurst Deep	1/4½	—1½d
Marlu	9	
Taquah	2/-	
Western Selection	9/1½	—4½d
Australian Gold		
Gold Minesof Kalgoorlie	12/6xc	+ 1½d
Great Boulder Prop	10/9xd	+ 3d
Lake View & Star	18/-	+ 9d
Mount Morgan	21/9	+ 3d
North Kalgurli	6/10½	+ 3d
Sons of Gwalia	3/6	
Western Mining	9/-xc	+ 1½d
Miscellaneous Gold		
Cam & Motor	9/1½	+ 1½d
Champion Reef	4/9	+ 3d
Falcon Mines	6/9	+ 3d
Globe & Phoenix	25/-	
G.F. Rhodesian	6/3	
Motapa	1/1½	
Mysore	3/1½	—1½d
Nundydroog	7/4½	—1½d
Ooregum	4/3	
St. John d'El Rey	16/3	
Zams	53/1½	—4½d
Diamonds and Platinum		
Anglo American Inv.	9	+ ⅛
Casts	29/-	+ 3d
Cons. Diam. of S.W.A.	7½	
De Beers Defd. Bearer	6 1/16	+ ⅛
De Beers Pfd. Bearer	16⅛	+ ⅛
Pots Platinum	10/3	+ 1/-
Waterval	16/6	
Copper		
Bancroft	40/6	+ 1/6
Chartered	70/3	+ 3/3
Esperanza	3/6	—3d
Messina	9⅛	+ ⅛
Nchanga	14 1/16	+ 1/16
Rhod. Anglo-American	5½	+ 1/16
Rhod. Katanga	26/6	—6d
Rhodesian Selection	46/3	+ 1/3
Rhokana	41⅛	+ 1⅛
Rio Tinto	3 1/16	+ ⅛
Roan Antelope	26/1½	+ 4½d
Selection Trust	3 1/16	+ 1/16
Tanks	7⅛	+ ⅛
Tharsis Sulphur Br.	6¼	+ ⅛
Tin (Eastern)		
Ayer Hitam	22/9	—4½d
Gopeng	8/7½	—1½d
Hongkong	7/6	—4½d
Ipoh	21/6	+ 3d
Kamunting	10/-	—3d
Kepong Dredging	3/6	—1½d
Kinta Tin Mines	15/4½	—4½d
Malayan Dredging	9/4½	—1½d
Pahang	12/7½	—1½d
Pengkalen	10/9xd	—1½d
Petaling	10/-	—3d
Rambutan	19/9	—9d
Siamese Tin	7/7½	—3d
Southern Kinta	16/9xd	—6d
S. Malayan	8/1½	
S. Tronoh	8/1½	+ 1½d
Sungei Kinta	15/9	
Tekka Taiping	6/6	—3d
Tronoh	9/1½	+ 4½d
Tin (Nigerian and Miscellaneous)		
Amalgamated Tin	11/10½	—9d
Beralt Tin	32/3	
Bisichi	5/3	—1½d
British Tin Inv.	22/6	—6d
Ex-Lands Nigeria	2/4½	
Geevor Tin	14/4½	—1½d
Tin (Nigerian and Miscellaneous) contd.		
Gold & Base Metal	2/-	
Jantar Nigeria	6/10½	—1½d
Jos Tin Area	14/3	—3d
Kaduna Prospectors	2/-	
Kaduna Syndicate	3/-	
London Tin	9/-	—1½d
United Tin	1/10½	
Silver, Lead, Zinc		
Broken Hill South	56/6xd	+ 3d
Burma Mines	3/-	+ 3d
Consol. Zinc	51/7½	+ 10½d
Lake George	12/6	+ 1/1½
Mount Isa	61/9	+ 1/3
New Broken Hill	40/4½	—3d
North Broken Hill	79/4½ xd	+ 2/4½
Rhodesian Broken Hill	13/9	
San Francisco Mines	24/9	+ 9d
Uruwira	6/4½	—1½d
Miscellaneous Base Metals and Coal		
Amal. Collieries of S.A.	50/-	+ 6d
Associated Manganese	37/3	+ 3d
Cape Asbestos	10/3	+ 4½d
C.P. Manganese	33/9	
Consol. Murchison	58/1½	+ 7½d
Natal Navigation	2⅛	+ 1/16
Turner & Newall	97/-	—6d
Wankie	17/7½	—4½d
Witbank Colliery	4⅛	
Canadian Mines		
Dome	$29	
Hollinger	$36	
Hudson Bay Mining	$114½	+ 2½
International Nickel	$136	+ 4
MiningCorpn.ofCanada	£7½	+ ½
Noranda	$91	+ 1
Quemont	£9½	+ ½
Yukon	4/1½	
Oil		
British Petroleum	5 1/16	+ ⅛
Apex	30/3	—6d
Attock	40/6	—6d
Burmah	3⅛	+ 1/16
Canadian Eagle	47/3	+ 3d
Mexican Eagle	23/3	+ 1/-
Shell	6⅛	+ 1/16
Trinidad Leasehold	36/9	—6d
T.P.D.	25/6xd	+ 6d
Ultramar	28/3	+ 6d

COMPANY NEWS AND VIEWS

Rhokana's Disappointing Increased Payment

Rhokana Corporation, the important Northern Rhodesian copper producer and investment company disappointed the market yesterday with its announcement of a final dividend of 42s. 6d. net against 40s. net per £1 Ordinary and £1 "A" stock making, with the interim already paid, a total for the year of 52s. 6d. compared with 50s. a year ago.

Although the copper price for the year ended June 30 last was at a much higher figure than in the previous year, net profits, after tax, expanded by less than £500,000, the figures being £10,022,463 this year against £9,544,021 last year. The latest net profit, however, was arrived at after writing off costs connected with the strike of African employees in January-March, 1955, when production and sales of copper were directly affected.

Even so, the Corporation's substantial holdings in Nchanga Consolidated and Mufulira which brought in some £3,600,000 1953-54 must have improved during 1954-55. Thus it will be interesting to examine Rhokana's full accounts when they become available, to see why the distribution was not more generous.

Rho-Anglo Also Pays More

Rhodesian Anglo American which controls Rhokana, has announced a rise in net profits for the year ended June 30, 1955, to £5,515,185 from the £5,104,539 achieved a year ago. The final dividend of 6s. 3d. net per 10s. unit represents an increase of 3d. per unit over the final payment made a year ago and brings the total distribution for the year 1954-55 up to 7s. 9d. net per unit against 7s. 6d. net in 1953-54. Both Rhokana and Rho-Anglo state that in respect of dividends payable to addresses in the U.K., the London secretaries, as paying agents, will deduct U.K. income tax from the net dividend at a rate reduced by a provisional allowance for relief from double taxation. Other dividends will be paid without any deduction of U.K. income tax.

Sir Ernest Oppenheim is chairman of both companies.

Bright Outlook for Frontino

A greatly increased profit before tax at £173,000 as compared with £33,000 was earned by Frontino Gold Mines during the first nine months of its current financial year. This was mainly the result of greater revenue from bullion sales at £750,000 as compared with £662,500 together with a reduction in Colombian expenditure from £589,000 to £535,000 due to a higher price obtained for mining dollars.

Announcing its intention to pay to ordinary and preference stockholders a dividend of 1s. 6d. per share or £1 stock (free of income tax) the company states that if the present state of affairs continues final dividends of 2s. per share for £1 stock (free of income tax) will be recommended. This would bring total distribution for the year to 3s. 6d. per share or £1 stock (free of income tax) which would compare with 15 per cent (less income tax) for the year 1955.

Fresnillo Expects Current Profit Level to Continue

During the year ended June 30, 1955, The Fresnillo Company earned total gross revenue from metals and ore produced of $20,610,379 as compared with $17,965,634 during the preceding year. After all expenses including taxes and depreciation the company's net profit was $758,053 ($306,984). Dividends of $.66 per share ($.23) absorbed $589,025 ($211,042) and unappropriated earned surplus carried forward declined slightly to $5,266,268 from $5,479,378.

In his report to stockholders, Mr. Wm. Mason Smith, the president was optimistic about the company's outlook during the current year. At present, he said, there seems to be no reason to anticipate much change in metal prices so that in the absence of any unforeseen circumstances, a continuation of current profit levels could be expected in the 1955-56 fiscal year.

In connection with the company's intention to acquire substantial mining properties in Mexico, it is intended to increase the authorized capital stock to 2,100,000 shares of $1 par value from the present level of 1,050,000 shares.

Perak River's Higher Output

A total of 432,000,000 units of electricity were generated by the Perak River Hydro-Electric Power Company during the year ended July 31, 1955. This compared with about 390,000,000 during the previous year. Reflecting this increased output total revenue moved up to £1,592,999 from £1,449,571. After all expenses, depreciation and taxation, the balance of profit was substantially increased to £320,200 from £233,651. Dividends absorbed £135,781 (£130,625) and a total of £400,000 (£100,000) was placed to general reserve. The balance carried forward increased to £130,555 from £106,136.

It is stated in the directors' report that a new 12, M.W. turbo-alternator and Boiler were placed on order in August, 1955, for delivery by June, 1957. Mr. Hugh D. Balfour is chairman. Meeting, London, November 4.

Clutha River Maintains Profits and Output

During the year ended March 31, 1955, Clutha River Gold Dredging, the New Zealand property, treated a total of 2,906,000 cu. yds. as compared with 2,904,000 cu. yds. during the preceding year. From this ground an amount of 5,947 oz. of gold was recovered as against 5,957 oz. Working costs fell slightly to an equivalent of 4.13d. per cu. yd. from 4.48d. per cu. yd.

Year to Mar.31	*Total Revenue*	*Expenses†*	*Taxation*	*Net Profit*	*To Reserve*	*Carry Forward**
	£	£	£	£	£	£
1955	72,025	50,008	8,044	5,515	4,912	4,714
1954	73,620	54,197	6,762	3,485	3,000	7,459

† After £1,000 written off and other expenses of £2,465. (1954 - £1,000 total).
* In New Zealand.

Referring to current operations, Col. Charles Edward Ponsonby, the chairman, stated that the dredge had worked satisfactory, but ground treated still remained below the property's average value. It had, therefore, not been possible to pay an interim dividend in respect of the half year ended September 30.

Meeting London, November 2.

Fall Expected in S. Kinta's Output

In his statement to shareholders for the year ended March 31, 1955, the chairman of Southern Kinta Consolidated, Mr. J. Ivan Spens, said that output for the current year was bound to be substantially less than that of the previous year. While this was mainly due to the closing down of Southern Kinta No. 1 dredge for transfer to the Sungei Bernam Area, a further adverse factor was that some of the company's dredges were expected to work lower grade ground.

This statement naturally foreshadows the probability of lower profits. But as Mr. Spens pointed out, during past years provisions had been made for such commitments as this. He hoped, therefore, that it would be possible to reduce the current year's expenses to some extent. He also reminded shareholders that a substantial balance from profit and loss account was available to be drawn upon if considered desirable.

Mr. Spens spoke of the Kinta Section No. 3 dredge on which reconstruction was completed by June, 1954. Commercial operations by this unit started in August, 1954, and continued satisfactorily throughout the year.

During the past financial year Southern Kinta earned total revenue of £2,529,615 as compared with £2,213,399. After taxation and a transfer to general reserve of £156,047 (£142,500) dividends absorbed £393,218 (£370,370) from the total of £407,255 (£404,529) available. Unappropriated profits rose to £381,888 from £367,851.

The company's balance sheet revealed a rise in total assets to £4,572,107 from £4,206,278. Current assets of £4,306,069 exceeded current liabilities and provision for future taxation by about £2,700,000 representing a position of considerable financial strength.

Meeting London, November 7.

'Frisco Mines Production 1954-55

The September quarterly report of San Francisco Mines of Mexico completes the production returns for company's financial year.

Total production of lead concentrates was 57,027 tons, of copper concentrates 7,288 tons, and 80,870 tons of zinc concentrates. These outputs compare with 59,124 tons of lead concentrates, 7,999 tons of copper concentrates and 80,473 tons of zinc concentrates in 1953-54.

TEKKA, LTD.

MR. DONALD W. THOMAS'S STATEMENT

The thirty-fifth annual general meeting of Tekka, Limited, was held on October 26 at the Registered Office, Redruth.

Mr. Donald W. Thomas (Chairman) presided.

The Reports and Accounts for the year ended March 31, 1955, having been circulated for the prescribed time, were taken as read, as was also the Chairman's Statement, circulated with the Accounts, which was as follows:—

The Accounts for the financial year ended March 31, 1955, show a profit of £10,510 after payment to the Malayan Government of £11,600 as Royalty on Ore Sales and provision of £18,387 for United Kingdom and Malayan Taxation (less credit for Malayan Tax). As the result of agreement with the Revenue Authorities of claims in connection with Rehabilitation the sum of £4,670 becomes available, being provision made for taxation which is no longer required.

Three dividends totalling one shilling per share, absorbing a nett amount of £10,197, were paid to Shareholders, £467 was written off Capital Account, the sum of £4,218 was transferred to General Reserve and the balance of £28,321 brought forward from the previous year was increased to £28,619 which the Directors propose to carry forward.

The Report of our General Managers, Messrs. Osborne and Chappel, circulated with the annual report, gives particulars and comparative results at the Mine.

During the year 149.15 tons of tin ore were recovered from 376,500 cubic yards of ground treated, this output being practically the same as that of the previous year. With the higher grade of the ground treated and the better price of tin, the profit would have been substantially higher but for the necessity to include in the mining expenditure an exceptional sum of over £7,000 paid for premiums on the renewal of Mining Leases.

During the current financial year the output for the first five months was 56½ tons of tin ore, and in their report the General Managers state that it is anticipated that production will be maintained at a level comparable with that of the year under review.

I referred last year to the International Tin Agreement and stated that it then awaited ratification by the producing and consuming countries concerned. Since then additional ratification have been received, but it still lacks the necessary number before the Agreement can come into operation.

Since the year under review ended perhaps the most important event in Malaya is the recent election of the newly constituted Legislative Assembly for the Federation of Malaya which is the first step to ultimate self-government. It starts work with the goodwill of all races in Malaya.

The security position shows further signs of improvement and during the year, in accordance with Government policy, the number of resident Special Constables at the Mine was again reduced. No incidents have occurred at your property although Security Forces were active in the vicinity.

The Directors record their thanks to the General Managers and the Managers and Staff at the Mine and their appreciation of their loyal service under conditions which still entail constant vigilance.

The Statement of Accounts and Balance Sheet, together with the Directors' Report, were received and adopted.

Mining Men

Mr. J. M. Carr, O.B.E., has joined the board of Bibiani (1927) Ltd.

Sir Thomas S. Chegwidden, C.B., C.V.O., has been appointed a director of Ndola Copper Refineries Ltd.

Mr. Godfrey Cresswell Hutchinson has resigned from the board of Tanganyika Concessions Ltd., and **Mr. Robert Clark Hutchinson** has joined the board.

Col. Sir T. Ellis Robins, K.B.E., D.S.O., E.D., has been elected to the board of De Beers Consolidated Mines Ltd., following the death recently of **Sir Dougal Malcolm, K.C.M.G.,** a director of De Beers for many years.

Mr. A. B. Mallinson has resigned from the board of The Mazapil Copper Co. Ltd. and **Mr. Phillips B. Tartt** has been appointed a director in his place. Mr. Mallinson will act as Mr. Tartt's alternate.

Mr. A. C. Stewart has been appointed Assistant Sales Manager of Chloride Batteries.

KWAHU MINING

DIVIDEND RAISED TO 45 PER CENT

The annual general meeting of Kwahu Mining Co. (1925), Ltd., was held on October 25 at Winchester House, London, E.C., **Mr. A. Hedley Williams, M.Inst.Pet., A.M.I.M.M.,** presiding in the absence of the Chairman, **Mr. O. V. G. Hoare.**

The following is an extract from the Chairman's review which was circulated with the Report and Accounts:—

The accounts for the year to June 30, 1955, show a net profit of £37,748, compared with a profit of £27,159 for the previous year. Income from dividends and interest increased from £16,746 to £28,063 while profits from share transactions rose from £14,434 to £19,507. The increase in dividend income resulted largely from dividends totalling 7½% received from Gold Coast Main Reef Limited during the accounting period, compared with only 5% received in the previous financial year. Dividends and interest from sources other than Gold Coast Main Reef totalled £13,625.

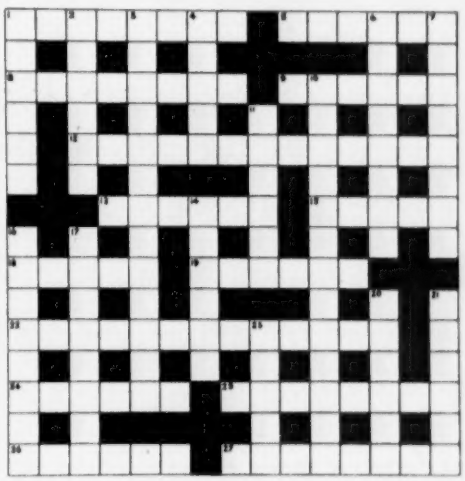
An interim dividend of 15% for the year has already been paid and the Directors now recommend payment of a final dividend of 30%, making a total distribution of 45% compared with 30% for 1954.

The Report and Accounts were adopted.

Obituary

MR. E. B. WALKER

Mr. E. B. Walker, formerly Technical Director of Walker Bros. (Wigan), died on October 7. Mr. Walker, who was 71, retired from the board of Walker Bros. (Wigan) Ltd. in June, 1953, after 50 years of service. He was closely connected with the varied types of equipment manufactured by the company, particularly with the design and supply of large ventilating plant for mines and tunnels in the U.K. and overseas.



'UNICONE' CROSSWORD No. 11

ACROSS.—1. Mother follows the captain to a point (8). 5. It's a bit thin (6). 8. Ran back after the navigator loses the bus (8). 9. "But doth suffer a sea——" (Shaks.) (6). 12. Watts taking the sun's place ?(8, 5). 13. Obviously where father camps (6). 15. The editor puts a stop to this (5). 18. There's a famous one at Westminster (5). 19. Lady with a stony stare (6). 22. Machinery of the Fourth Estate (8, 5). 24. Lava is making itself of value (6). 25. St. Paul in wedding garb. (8). 26. A wise old chieftain (6). 27. Crossword solvers should excel at these (8).

DOWN.—1. It has its points (6). 2. All met for a banger (6). 3. The last word between anger and an unfinished story (13). 4. Much the same as 5 across (5). 6. Eager Ned for an insurgent (8). 7. Smooth water at the end of day ?(8). 10. Pell-mell (6, 7). 11. The engagement is off (6). 14. I'm hesitant before claiming the fur (6). 16. A broken friend is fettered. A minister is needed (8). 17. They wouldn't approve of the awful jokes about Rita (8). 20. Pounds, shillings and pence in a muddle. You can't walk off (6). 21. You have five of them (6). 23. The stuff for Jeames.

Solution on page 509

AMALGAMATED TIN MINES OF NIGERIA

CHAIRMAN'S SPEECH

The Sixteenth Annual General Meeting of Amalgamated Tin Mines of Nigeria Limited was held on October 21 at Winchester House, Old Broad Street, London, E.C.

Mr. J. Ivan Spens, O.B.E., the chairman, who presided, said :—

I must first refer to the loss I and my colleagues have suffered in the death of Mr. Farquharson in March of this year, who was appointed a director of this company in 1939.

ACCOUNTS

Where I refer to *the* year, I mean your company's and the subsidiary companies' year to March 31, 1955.

The accounts for the year will, I am sure, be considered by shareholders as satisfactory. The output of tin concentrate was very much the same as last year, but there was a fall in the production of columbite due to the reduction in treatment of mill tailings.

The profit for the year before taxation was £1,484,069, against £1,497,506 last year. Additional depreciation of £385,000 has been appropriated, of which £200,000 has been provided from the contingencies reserve.

Taxation takes £768,000, against £926,000 last year, the decrease being mainly due to the cessation of the Excess Profits Levy, reduction in the standard rate of income tax, and adjustments for previous year. Under the Finance Act, 1954, investment allowances will be claimed on capital expenditure and wear and tear allowances allowed on the cost of the new assets as opposed to wear and tear allowances on the cost less the previous 20 per cent. initial allowances. This is obviously most helpful to any industry. The taxation relief on the investment allowances for the past year is approximately £29,000, and this amount has been transferred to a capital reserve.

The three dividends totalling 45 per cent. already paid absorbed £494,812, leaving a balance for the year of £7,257, which increases the carry forward to £274,459.

PRICE OF TIN

The average price of tin metal realized during the year was £64 per ton higher at £721 per ton compared with £657 per ton last year. This is equivalent to a Nigerian f.a.s. price of £682 per ton, but we have to pay royalty on the higher tin metal price.

COLUMBITE

Our sales of columbite during the year were sold at the higher price based on the 100 per cent. bonus price paid by the Government of the United States. In May, 1955, the bonus was withdrawn and we have since completed our forward contracts to the United States under the bonus offer. In the case of columbite we have to pay royalty on the gross price realized and consequently we are assessed for royalty on the amount of the freight charges, etc., of approximately £48 per ton on our shipments to America.

ORE RESERVES

Tin ore reserves at the end of the financial year were estimated at 44,051 tons, a net decrease on the year of 1,820 tons, against the 4,094 tons of concentrates won.

SUBSIDIARY COMPANIES

Kelli Tin Company Limited.—This company had a very satisfactory year. The columbite output was 433 tons of concentrate, an increase of 243 tons over the previous year.

A drilling programme to develop reserves in areas selected after consideration of the results of the geological investigation was continued throughout the year. Power drilling and prospecting is continuing.

Problems encountered in recovering primary columbite have been subjected to detailed study by the technical and geological staff with satisfactory results, but further study and work on improving ore dressing is required. Close co-operation with the Geological Survey of Nigeria has been maintained throughout the year.

The output of tin concentrates for the year was 72 tons compared with 60 tons in the previous year.

Plans are in hand for building a larger capacity commercial plant and a new mill for dressing the ores, and for this purpose a reserve for additional equipment has been created by appropriation of £325,000 from profit and loss account. A dividend of 100 per cent. was paid during the year to the parent company.

London Nigerian Mines Limited continued to work satisfactorily, the output for the year being 250 tons tin concentrates and 10 tons columbite concentrates compared with 271 tons tin concentrates and nine tons columbite concentrates last year.

LABOUR

Relations with labour have in the main been satisfactory. In January, 1955, a Joint Industrial Council and Joint Consultative Committees for the minesfield on the plateau were set up to help labour relations. The workers' councils which are organized by the company's welfare department and have operated for many years must continue their useful work in welfare and other matters and will not in my opinion be redundant due to the formation of the joint consultative committees.

Since the end of the year new agreements have been signed covering leave benefits and retirement gratuities.

A Federal Labour Advisory Council is being set up by the Minister of Labour and Welfare to consider and advise on matters relating to the application and operation of existing and proposed labour and social security legislation and the application of international labour conventions.

WELFARE

This subject continues to receive the closest attention of the board and the management. The technical managers' report included in the report and accounts records progress during the year.

GENERAL

I recently visited the mines, leaving this country by air on September 16 and arrived back, again by air, on October 4.

During my visit I had the pleasure of meeting the Minister of Mines and Power and also the Minister of Labour and Welfare, as well as the permanent heads of their departments, and the Chief Secretary and certain other officials of the Nigerian Government, including, of course, the Resident, Plateau Province, and the Chief Inspector of Mines.

Mr. H. E. Wilson, who is chairman and general manager of A.O. Nigeria Limited, our managers in Nigeria, has been on leave and we have been able to discuss various matters with him before and after my visit. Mr. Farrington, the assistant general manager of A.O. Nigeria Limited, was in charge during my visit, and I would thank him for arranging my programme so efficiently.

As already announced in the Press, a general strike of the African mineworkers throughout the tinfields in Nigeria started this week. Apart from the fact that all our plant has stopped, though some tin contractors are working, I have at present no further news to report.

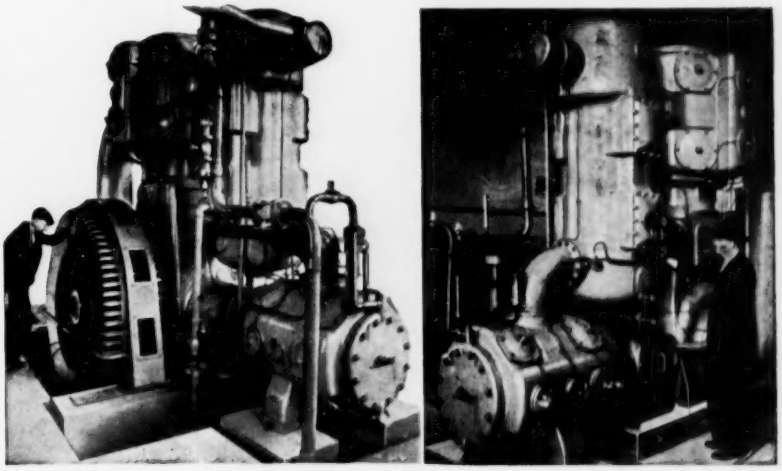
STAFF

To both Mr. H. E. Wilson and Mr. Farrington and to all European staff and African staff under contract and also to all the employees I would again like to express our appreciation of the efforts they made during the past year.

The report and accounts for the year ended March 31, 1955, were adopted and the retiring director re-elected.

Atlas Copco AR type Compressors give *more* air to the h.p. than other machines of their class

Choose a rugged Atlas Copco AR Compressor and you can rely on it to deliver more air, h.p. for h.p., than any other compressor of its class. The reason is that these machines have been developed with the aim of low operational costs—both in fuel and upkeep. Take the AR 3 featured here. Its power consumption at 100 lbs. per sq. in. is 105 h.p. With this power consumption the supply of free air is 570 cu. ft. per min. Compare performances!



An Atlas Copco AR9 Compressor installed at N.C.B. Mountain Colliery, S. Wales

The photographs in this advertisement are published with the permission of the National Coal Board

FUEL SAVING PAYS FOR OUTLAY

To get the same amount of air from other compressors would, in most instances, require an additional 15 h.p., but 15 h.p. never used mean an *annual saving on fuel bills of £270.* That amount of money represents approximately *one-fifth* of the initial cost of the AR 3. In five years, that's your money back!

FLEXIBLE AIR SUPPLY

Three-step valve unloading control on smaller models or five-step clearance pocket control on larger sizes permits flexible adaptation to variations in air demand. Also means smooth flow of current to motor.

LOW DISCHARGE TEMPERATURES

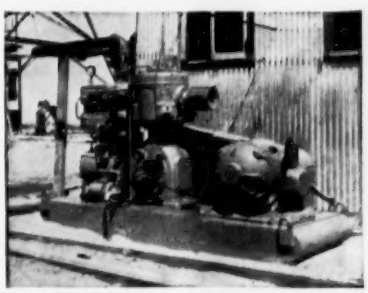
Amply-dimensioned water pockets, the two-stage design and streamlined air passages give discharge temperatures below 270° F at 100 lbs. per sq. in.—as compared with 475° F from most single-stage machines. Lower temperatures mean longer valve life and elimination of the risk of air receiver and pipe-line explosions.

EXTRA-SOLID CONSTRUCTION

High-class Swedish materials and steel throughout; amply-dimensioned parts reduce stresses to a minimum; crankshafts carried on SKF roller bearings; cross-head design with ground or white-metal lined bearings avoids piston side pressure, eliminates cylinder wear.

EASE OF INSTALLATION

Right-angled, double-acting cylinders combined with counterweighted crankshaft provide a very low weight/capacity ratio and extremely good balancing—thus reducing foundation requirements. So good indeed, that most models can be mounted on a skid underframe and used as semi-portable units without any foundation or bolting-down.



A skid-mounted Atlas Copco AR Compressor in operation at Pima Mining Co., Arizona, U.S.A.

Atlas Copco Compressed Air Equipment is manufactured or sold and serviced in 48 countries throughout the world by *The Atlas Copco Group*, which embraces companies trading under various names such as Atlas, Atlas Diesel, Atlas Polar, Atlas Copco, Copco, Delfos and Sampa.

MAIL THIS COUPON *to the most convenient of the addresses given here.*

UNITED KINGDOM, The Atlas Diesel Co. Ltd., Wembley, Middx.; FRANCE, Atlas Polar S.A., 29, Rue Marbeuf, Paris 8e; HOLLAND, N.V. Holland-Atlas, P.O. Box 6056, Rotterdam; ITALY, S.A.M.P.A., Viale Marche 15, Milan.
CANADA, Canadian Copco Ltd., Montreal, A.M.F.; AUSTRALIA, Australian Atlas Co. Pty. Ltd., P.O. Box 54, Auburn, N.S.W.; SOUTH AFRICA, Delfos Pty. Ltd., P.O. Box 504, Benoni, Transvaal.
U.S.A., Copco Pacific, Ltd., 930 Brittan Avenue, San Carlos, California; Copco Eastern, Ltd., PO Box 2568, Paterson 2, N.J.
Readers in countries outside those listed above and who do not know the name and address of their local Atlas Copco company or agent, please write, in the first instance, to AB Atlas Diesel, Stockholm 1, Sweden.

Please forward details of **Atlas Copco AR type Compressors.**

NAME _____

COMPANY _____

ADDRESS _____

_____

_____

*I am also interested in other Atlas Copco equipment (*please state which below*).

_____ 3/22

PERFORMANCE FIGURES OF ATLAS COPCO **AR** COMPRESSORS

Type	Maximum pressure lb. sq. in.	Speed at 50 cycles r.p.m.	Low-pressure piston displacement cu. ft. min.	Free air delivery at 100 lbs. sq. in. cu. ft. min.	Power required at 100 lbs. sq. in. h.p.	Cooling water required at 60° F approx. gal. hr.	Weight lbs.
AR 1	120	600	404	330	62	310	2860
AR 3	120	500	718	570	105	506	5280
AR 4	120	429	915	760	138	682	5610
AR 5	120	375	1230	1000	185	880	9020
AR 7	120	333	2120	1750	320	1540	14520
AR 9	120	300	4020	3220	587	2926	26400

* *Manufacturers of Stationary and Portable Compressors, Rock-drilling Equipment, Loaders, Pneumatic Tools and Paint-spraying Equipment.*

THE ATLAS COPCO GROUP OF COMPANIES

HARMONY GOLD MINING COMPANY, LTD.

(Incorporated in the Union of South Africa)

AUTHORISED CAPITAL	£4,500,000
ISSUED CAPITAL (16,142,555 Shares of 5s. each)	£4,035,639

Extracted from the Annual Report for the Year ended 30th June, 1955

Tons Milled 495,000 Gold produced 173,658 oz. fine

Production of gold and uranium began in September, 1954, and April, 1955, respectively

			Per ton milled
Working Revenue	From Gold, etc., for 10 months ended 30th June, 1955	£2,179,773	£4 8 1
Working Expenditure		1,553,816	3 2 9
Working Profit		625,957	£1 5 4
Working Profit	From Uranium for three months ended 30th June, 1955 (subject to adjustment)	160,444	
Total		786,401	
Expenses *less* Sundry Revenue		124,416	
		661,985	
Taxation		37	
Profit after Taxation			£661,948
Preliminary and flotation expenses written off		17,138	
Expenditure on mining assets and trade investments		644,810	
			661,948

The initial ore reserve was estimated as at 30th June, 1955, as follows :

Reef	Available			Shaft and Safety Pillars			Total		
	Tons, 000's	Value, Dwt.	Width, Inches	Tons, 000's	Value, Dwt.	Width, Inches	Tons, 000's	Value, Dwt.	Width, Inches
Basal	931	8.0	57.9	126	6.7	66.3	1,057	7.8	58.8

The full Report and Accounts may be obtained from the London Secretaries, A. MOIR & Co., 4, London Wall Buildings, London, E.C.2.

BLYVOORUITZICHT GOLD MINING COMPANY, LTD.

(Incorporated in the Union of South Africa)

AUTHORISED CAPITAL	£3,300,000
ISSUED CAPITAL (24,000,000 Shares of 2/6 each)	£3,000,000

Extracted from the Annual Report for the Year ended 30th June, 1955

Tons Milled 1,257,000. Gold produced 722,758 oz. fine

		Per ton milled
Working Revenue	£9,068,363	£7 4 3
Working Expenditure	3,503,933	2 15 9
Working Profit—from Gold, etc.	5,564,430	£4 8 6
—from Uranium (subject to adjustment)	1,104,826	
Total	6,669,256	
Deduct Expenses *less* Sundry Revenue	108,871	
	£6,560,385	
Taxation (£2,679,948) and **Mineral Lease Consideration** (£593,612)	3,273,560	
Profit after Taxation and Lease Consideration	3,286,825	
Balance of Income and Expenditure Account	1,406,201	
		£4,693,026
Expenditure on mining assets and trade investments	185,059	
Repayment on account of Capital portion of Uranium Loan	329,892	
Dividends declared—No. 18 of 1s. 2d. and No. 19 of 1s. 1d. per share	2,700,000	3,214,951
Balance of Income and Expenditure Account at 30th June, 1955		£1,478,075

The **ore reserve** was re-estimated at 30th June, 1955 This estimate together with that of the previous year is as follows :—

Carbon Leader Reef	Available			Shaft and Safety Pillars			Total		
	Tons, 000's	Value, Dwt.	Width, Inches	Tons, 000's	Value, Dwt.	Width, Inches	Tons, 000's	Value, Inches	Width, Dwts.
30.6.1955	5,191	12.1	46.4	1,661	12.2	45.8	6,852	12.1	46.2
30.6.1954	5,176	12.3	46.5	1,513	13.0	45.7	6,689	12.5	46.3

The full Report and Accounts may be obtained from the London Secretaries, A. MOIR & CO., 4, London Wall Buildings, London, E.C.2.

SEPTEMBER MINE RETURNS

AUSTRALIAN GOLD

Company	4 weeks to Sept. 6 1955		4 weekly period since year-end	Current Financial Year Total to date		Last Financial Year Total to date	
	Tons (000)	Yield (oz.)		Tons (000)	Yield (oz.)	Tons (000)	Yield (oz.)
Central Norseman	12·2	6,882	6	84·1	41,656	72·6	39,102
Central Victoria*	92·4	328	6	506·7	1,884	1027·9	2,400
G.M. of Kalgoorlie	37·9	9,825	6	223·9	56,191	90·4	25,281
Gt. Western	36·9	4,868	6	192·1	27,002	199·3	24,425
Morning Star	1·6	474	6	8·4	2,765	8·3	6,136
New Coolgardie	4·7	2,303	6	28·7	13,157	29·4	14,529
North Kalgurli	26·7	6,290	9	238·1	51,471	164·3	39,566
Sons of Gwalia	9·6	1,792	9	81·7	16,351	73·7	16,758

* Cu. yds. dredged.

SOUTHERN RHODESIAN GOLD

Company	Sept., 1955			Months since year end	Current Financial Year Total to date			Last Financial Year Total to date		
	Tons (000)	Yield (oz.)	Profit (£000)		Tons (000)	Yield (oz.)	Profit (£000)	Tons (000)	Yield (oz.)	Profit (£000)
Arcturus	3·0	1,089	5·0	3	9·2	3,247	13·3	8·7	2,675	9·4
Cam & Motor	24·0	7,684	40·1	3	72·0	22,943	122·3	72·5	22,468	126·1
Falcon Mines	17·7	3,117	†9·7	12	210·1	37,850	141·5†	203·9	34,384	120·6
Globe & Phoenix	6·0	3,813	23·6	9	54·4	32,199	209·1	54·6	32,384	210·1
Motapa Gold*	18·0	2,446	2·6	9	146·3	20,462	10·7	164·1	22,487	29·7
Muriel Mine	3·4	1,019	10·0	3	9·9	3,210	30·1	9·4	2,941	30·3
Phoenix Prince	31·9	3,668	9·9	6	65·4	7,655	20·7	61·6	7,755	16·8
Tebekwe	3·9	855	1·5	3	25·0	2,645	3·9	24·3	3,063	7·5

* Excluding premium gold sales.
L indicates a loss.
† This figure includes additional profit from accumulated concentrates retreated at Dalny Mine and also revenue from miscellaneous gold sales.

WEST AFRICAN GOLD

Company	Sept., 1955			Months since year end	Current Financial Year Total to date			Last Financial Year Total to date		
	Tons (000)	Yield (oz.)	Profit (£000)		Tons (£000)	Yield (oz.)	Profit (£000)	Tons (000)	Yield (oz.)	Profit (£000)
Amal. Banket	80·6	12,309	29·5	12	960·6	149,638	373·2	839·6	134,005	214·4
Ariston Gold	40·2	11,379	47·8	12	345·7	111,299	568·2	398·9	130,545	612·5
Ashanti	28·0	17,388	70·0	12	307·5	197,574	840·4	299·5	191,417	790·5
Bibiani (1927)	30·0	6,267	9·7	12	359·0	75,617	145·5	333·1	77,061	135·1
Bremang*	827·5	3,917	15·1	9	6690·3	30,784	99·3	4427·4	20,510	19·0
G.C.M. Reef	8·8	2,732	0·9	3	25·9	8,939	14·4	29·7	12,405	49·2
Konongo	3·4	3,069	15·5	12	40·8	37,749	187·2	34·4	34,916	161·3
Lyndhurst Dp	0·9	1,170	5·1	9	12·1	13,491	68·2	12·0	13,956	68·3
Taquah & Ab.	29·5	6,240	4·4	6	171·5	35,525	16·9	164·9	35,568	25·8

* Cu. yds. dredged.

INDIAN GOLD

Company	Sept. 1955		Months since year-end	Current Financial Year Total to date		Last Financial Year Total to date	
	Tons (000)	Yield (oz.)		Tons (000)	Yield (oz.)	Tons (000)	Yield (oz.)
Champion Reef	12·5	4,053	9	128·1	45,394	134·2	53,081
Mysore	13·4	3,673	9	143·0	44,668	161·4	60,076
Nundydroog*	22·3	6,446†	9	169·1	51,715	193·4	55,161

* Includes tailings.

MISCELLANEOUS GOLD

Company	September 1955		Months since year-end	Current Financial Year Total to date		Last Financial Year Total to date	
	Tons (000)	Yield (oz.)		Tons (000)	Yield (oz.)	Tons (000)	Yield (oz.)
Br. Gv. Consol*	154·0	1,502	9	1477·2	12,565	1790·4	15,763
Clutha River*	262·0	458	6	1454·0	2,795	1254·0	1,847
Frontino	11·5	7,082	9	105·6	57,506	93·7	52,116
Kentan (Geita)	22·6	3,470	3	69·6	10,287	66·0	10,224
New Gv. Goldfds.†	3·7	1,191	11	38·3	14,807	36·4	16,055
St. John d'El Rey	27·5	120‡	9	229·8	1000·7	232·4	1063·5

* Cu. yds. dredged. † One month late. ‡ Estimated value £(000).

COAL OUTPUT

Company	September (in tons)	Months Since Year End	Cumulative Totals (in tons)	
			This year to date	Last year to date
Amal. Coll. of S.A.	574,520	9	5,219,919	5,173,500
Apex	87,427	9	768,779	723,835
Blesbok	49,450	9	402,965	400,165
Coronation	81,924	9	804,810	776,766
Natal Navigation	100,176	3	207,473	308,217
New Clydesdale	76,154	3	218,052	207,544
New Largo	81,242	9	820,566	723,075
S.A. Coal Est.	137,886	3	412,018	404,623
Springbok	72,753	9	646,661	614,911
Transvaal & Delagoa	119,142	1	119,142	123,051
Van Dyks Drift	56,259	9	519,918	446,142
Vierfontein	115,425	9	997,129	701,057
Vryheid Cor.	52,731	9	426,228	378,122
Vryheid Cor.*	38,849	9	351,566	316,634
Wankie Coll.	295,927	1	295,927	245,464
Wankie Coll.*	18,341	1	18,341	15,317
Witbank	145,515	9	1,353,767	1,181,786

* Coke.

TIN OUTPUT IN TONS OF TIN CONCENTRATES

Company	Sept.	Months since year end	Financial Year to Date	
			This	Last
EASTERN				
Ampat	a113½	9	1044½	886½
Anglo-Burma*	31	3	31	30
Ayer Hitam*	212½	3	212½	527½
Berjuntai	77½	5	400½	301½
Chenderiang*	51	6	110½	93½
Gopeng Consl*	202½	12	759	563½
Hongkong Tin*	181½	12	400½	152½
Idris Hyd.*	70	9	217½	194
Ipoh Tin*	b17	6	126	293½
Kamunting	217½	6	772½	564
Kent (F.M.S.)*	67½	9	207½	264½
Kepong*	91½	3	91½	66½
Killinghall*	84½	12	381	595½
Kinta K.	17½	6	82½	144½
Kinta T.	36½	9	286½	241½
Klang River	33½	6	133½	181½
Kramat Tin	30½	6	197½	127
Kuala K.	161	6	981	1269½
Kuchai	89½	1	737½	346½
Larut	72½	9	757½	872½
Lower Perak	230½	5	926½	832½
Malayan Tin*	591	3	591	422½
Malaysiam	13	6	78	63½
Pahang	222	2	438	440
Pengkalen	54	12	420½	535½
Petaling*	485½	12	2102	1520½
Puket Tin*	187½	9	563	499½
Rahman H.	33½	3	100½	105½
Rambutan*	64	3	64	62½
Rantau	44	3	186½	175½
Rawang Conc.	162	6	132½	289
Rawang Tin	133½	6	669½	260½
Renong	63½	3	204	327½
Selayang Tin*	65½	12	260½	225
S. Kinta	c254	6	1552	2355½
S. Malayan*	754½	3	754½	728½
Siamese Tin	249	9	1772½	1398½
S. Tronoh	204½	9	848	804½
Sungei Besi*	294½	6	560	579
Sungei Kinta	26	9	237	132½
Sungei Way*	503	3	503	316½
Taiping	37½	9	499½	500½
Tambah	10½	9	113½	178½
Tanjong	132	9	777½	555½
Tekka*	29	6	66½	68½
Tekka T.*	23½	12	234½	393
Temoh*	74½	3	74½	43½
Tongkah	56½	3	211	132
Tronoh*	780½	9	1967½	2098½
NIGERIA				
Amal. Tin	382	6	2179	1991
Amal. Tin†	32	6	301½	283
Bisichi	27	9	554	448
Bisichi†	11½	9	280	200
Ex-lands	42	9	447	433
Gold & Base	69	9	439	353
Gold & Base†	20	9	136	100½
Jantar Nigeria	20	12	240	198
Jantar Nigeria†	22	12	206	216
Jos Tin	11½	1	11½	13½
Kaduna P.	6½	9	54	55
Kaduna S.	22	9	194	265
Keffi†	25	6	181	212½
Lond. Nig.	22½	6	118½	145
Naraguta Ex.	20	9	79	53½
Naraguta K.	23	9	88½	131½
Naraguta T.	22	9	122½	152½
Naraguta T.†	6	9	64½	60
Ribon	18½	6	91½	55
Ribon†	7½	6	17	Nil
S. Bukeru	7½	9	51½	56½
S. Bukeru†	½	9	6½	2
Tinfields of Nig.	2½	6	11½	14½
Tinfields of Nig.†	1	6	11½	14½
U. Tin	13½	3	42½	36
U. Tin†	15½	3	29½	‡
MISC.				
Beralt Tin	14	6	71	29
Beralt Tin‡	172	6	994	1014
Geevor	57	6	328	305
Sth. Crofty Tin	66½	9	510½	438½
Sth. Crofty Tin‡	nil	9	1½	7

a Batu Caves fractured tumbler shaft, closed 14 days.
b No. 3 Dredge resumed work Sept. 14.
c Kinta No. 1 Dredge resumed work Sept. 5.
* Quarterly.
† Columbite.
‡ Wolfram.

CORRECT SOLUTION TO "UNICONE" CROSSWORD No. 11 APPEARING ON PAGE 505

ACROSS: 1, Comatase; 2, Sparse; 8, Columnar; 9, Change; 12, Electric Light; 13, Patent; 15, Ended; 18, House; 19, Medusa; 22, Printing Press; 24, Avails; 25, Nuptials; 26, Nestor; 27, Charades.

DOWN: 1, Cactus; 2, Mallet; 3, Temperamental; 4, Scant; 6, Renegade; 7, Eventide; 10, Helter Skelter; 11, Jilted; 14, Ermine; 16, Chaplain; 17, Puritans; 20, Island; 21, Senses; 23, Plush.

Metal and Mineral Trades

Published by The Mining Journal Ltd., 15 Wilson Street, Moorgate, London, E.C.2, and printed by Washburn & Sons Ltd., 25-27 Queens Road, Southend-on-Sea, Essex. Registered as a Newspaper.